AMERICAN NURSERYMAN

The Nurseryman's Forte: To Make America More Beautiful and Fruitful

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Neillia Sinensis

Chinese and Siberian Elms
The Morton Arboretum
Chemicals Hasten Root Growth
Native Plants of Garden Value

AMERICAN NURSERYMAN

Chief Exponent of the Nursery Trade

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EDITORIAL communications on subjects connected with nurseries, arboriculture or other phases of commercial horticulture are welcomed by the editor. Also articles on the subjects and papers prepared for conventions of nursery associations.

CONVENTION COMING.

Only six weeks away is the annual convention of the American Association of Nurserymen, to be held at the La Salle hotel, Chicago, July 12 to 15. On a subsequent page of this issue is described the Morton Arboretum, which will be visited on the opening day, prior to the three days of business sessions. On the same trip there will be luncheon and an opportunity to see the extensive plantings at the Naperville Nurseries, of which more in our next number. Glimpses of the tentative program for the business sessions show that President Siebenthaler and his fellow officers have carried out their promise to pack those days full of addresses, discussions and reports that will make the coming annual meeting not only an outstanding event, but a source of real help and information to every nurseryman who attends.

The morning of the first day will be devoted to the usual opening official reports, and the afternoon will be given over to the matter of reorganization. The morning of the second day is termed a technical and scientific session, with several addresses by outstanding individuals. The afternoon, devoted to merchandise and sales management, will bring notable speakers of another type. The final day will be devoted chiefly to the consideration of governmental relations. According to the time schedule set out, every minute will be taken.

The evenings will be spent in the "Storage Cellar" or other forms of good fellowship. Wednesday evening will be given over to the banquet and dance.

The importance of the subjects on the program, the good entertainment to be provided, the attractions of Chicago as a convention city and your own interest in the nursery industry make attendance at the coming convention extremely worth while. Make your plans for attendance now.

NATURE HELPS.

Because of weather conditions, trees and shrubs are flowering more profusely this spring than for a number of years. It seems that those whose bloom was inconspicuous in other seasons are out in full glory. Shrubs that flowered mildly last year seem to be putting forth their full exertions to produce colorful blooms.

Home gardeners, thrilled by this beauty of their plantings, are encouraged to extend them. Retail nurserymen have consequently found a notable demand springing from these enthusiasts, in addition to what would still have been a good spring business. The nursery trade is enjoying its best season in years. After playing tricks the past two seasons, nature herself is helping.

STANDARD CONTRACTS.

The question of the desirability of standardized contract forms for landscape work has been raised. Several trade associations make a practice of pooling information of general value, and it is suggested that nurserymen pool their experience with contract forms in order that a comprehensive, standard form of contract may be evolved. A standard contract form might lead to more equitable prices on landscape work by calling the attention of a bidder to items otherwise ignored or forgotten in the desire to secure the job.

It is claimed that a standard contract would be of great assistance in preventing disputes that arise from claims for compensation for unforeseen or overlooked items by providing a satisfactory method of adjusting such contingent claims. This goal might be attained by inserting in ordinary contract forms a standard clause drawn to provide for adjustment of such contingent claims on prearranged terms.

While on the subject of pooling information and experience for the benefit of the trade, another item might well be included. When nurserymen employ landscape draftsmen, should the draftsmen be remunerated on the basis of time, on a point system or by commission?

NEILLIA SINENSIS.

Neillia sinensis has never been given a common name so far as is known, and when it becomes more familiar will likely be referred to by its generic title, which is pronounced nee-li-a. This shrub, which is illustrated on the front cover, is another member of the extensive rose family, being closely related to physocarpus and stephanandra and having characteristics suggestive of both genera.

This neillia may eventually attain a height of six feet, though it is more often seen no more than half that tall. It is a graceful spreading shrub, with pink bell-shaped blooms that appear in terminal racemes about two inches long. The flowering period is May and June. It has proved perfectly hardy at Boston, Mass., and Rochester, N. Y. N. sinensis is native to China.

Propagation is not difficult, the plant coming readily from seeds or from cuttings of green wood rooted under glass. In fact, any of the methods employed to reproduce the shrubby spiræas can be used as well for the neillia.

It is easily grown in a variety of soils; so N. sinensis should prove popular when it is more generally offered. In fact, the magazine Horticulture remarks: "It is a shrub which is bound to take an important place in American horticulture when it becomes better known."

IF THERE is some defense for a public institution or governmental body growing nursery stock for its own use, still there is none for such institutions offering and selling the material they grow for use in projects outside their own territory. That they should be permitted to compete with commercial firms in bidding on contracts is almost unbelievable, but true.

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Chinese and Siberian Elms

Clearly Drawn Definitions Eliminate the Long-Existing Confusion Between These Species — By Leon Croizat

What is the Chinese elm? The question is often heard from the lips of puzzled nurserymen who would like to know precisely how this elm differs from the Siberian or dwarf Asiatic elm. Just as frequently the question comes up how Ulmus pumila and Ulmus parvifolia (sometimes miscalled Ulmus parviflora) must be understood.

To the commercial grower bidding for the business of public and private concerns, or consulting with landscape architects, the question has a definitely practical value. The importance of Asiatic elms has become greater with the spreading to our shores of the Dutch elm disease. American and English elms have fallen an easy prey to the scourge which has done untold damage in Europe. Although we can hope to bring the disease under control and eventually to eradicate it, Asiatic elms resistant to the infection have been sought of late in preference to others. While, in my opinion, the best way out of the difficulty lies in the direction of developing hybrids that retain the immunity of the eastern species and keep some of the beauty of the trees of Europe and America, the confusion of names at present is embarrassing. When reading certain bids and specifications one wonders sometimes if the would-be purchasers themselves expect to receive the elm they ask for by name.

To make short work of the confusion it must be stated that, regardless of names, the Asiatic elms of common cultivation are two, as different in every respect as day is from night. Of these two elms one, Ulmus pumila, is commonly propagated and commands a low price. The other, Ulmus parvifolia, is rare, so far as I know, and is sold for a much higher consideration. Both trees are thrifty and clean, free from the red spider which in and around New York blights the English elm.

Standardized Plant Names, edition 1924, lists Ulmus pumila as the dwarf Asiatic elm and presents Ulmus parvifolia as the Chinese elm. The reference in question loses none of its great merit and not a mite of its value for being criticized in certain details. Without splitting botanical hairs I must say that the name dwarf Asiatic elm is a downright unhappy one. There are several forms of Asiatic elms that have nothing in common with Ulmus pumila, and one at least of its recognized varieties is described as a tall, pyramidal tree. Thus the name, in addition to being too long for ordinary business practice, is misleading. I believe the name Siberian elm should be substituted for it and referred to Ulmus pumila exclusively, which, indeed, comes from Siberia and lands near by. Once the names are reëstablished the confusion between the Siberian and the Chinese elms vanishes forthwith.

The Chinese elm, in fact, is the one and single species for which we have a clean-cut "birth certificate" in the shape of an extended original description and of an excellent plate in colors. Every other name of the scores of species of elms, except those introduced in recent years, may be turned into a subject of controversy.

The Siberian elm, Ulmus pumila, is definitely deciduous; the first killing frost usually finds it ready for winter and rather bare. The Chinese elm, Ulmus parvifolia, on the contrary, wakes late in spring, around New York not earlier than June, and is correspondingly late in the fall of the year; in mild climates it can be classified as half-evergreen. With us dry leaves still hang from the limbs at Christmas time; down south the Chinese elm compares with the evergreen magnolias.

The leaf of the Siberian elm is not unlike that the English elm, a trifle longer than broad, hairless except for few hairs, if any, at the nerves, up to three inches from tip to base. Contrary to the widespread belief its teeth are often twice, and sometimes even thrice, serrate, or, in other words, each main tooth breaks up in two or three toothlets. The Chinese elm has a firmer leaf, narrower than long, hairless except at the crotches of the nerves, often fairly glossy, only exceptionally two inches in length, with teeth almost invariably simple.

In flower the two are poles apart. The Siberian elm unfolds its flat-topped, grayish-tufted flower buds in late March or early April, early enough in the northeastern states to have them nipped by stiff frost. The cup (perianth) that incloses the ovary and the stamens is shallowly toothed at the margin; the fruit (key, or samara) is as broad as long, or broader than long. The Chinese elm blossoms when the apples are ripe in the orchard, in late September or early October. The perianth is cleft all the way down, and the key is longer than broad in shape much like a diminutive fruit of the Scotch elm.

The bark is light of color, and not very rough in the Siberian elm; blackish and almost scaly or scaly in the

Chinese elm, closely resembling in old specimens the main stem of the common eastern wild cherry, Prunus serotina.

The Siberian is probably the easiest elm to identify in winter. Its twigs are slender, almost whip-like, gray to greenish gray, in adult specimens thickly studded with blackish small flower buds. The thinness and the color are unmistakable even in sterile saplings. Of the commonly cultivated species there is only one other elm, the slippery elm, Ulmus fulva, which has twigs grayish at the tip, but in this elm the twigs are much stouter than in the Siberian elm, and the buds are at least twice as large, mostly heavily tufted with reddish brown hair.

The Chinese elm, in winter, is difficult to identify, and I do not know what character to suggest that is foolproof in itself. Naturally, it cannot be mistaken for the Siberian elm, because its twigs are light brownish and emphatically not slender whip-like. But it is uncomfortably close to the English elm in appearance, so much so in fact that it takes a sharp eye to tell, or to guess, the difference between the two. Mature trees in winter carry flower buds in the English elm, and nothing but small leaf buds in the Chinese elm, which is probably the safest note of identification. The only other cultivated elm that blossoms in the fall and lacks winter flower buds is our native red or fall elm, Ulmus serotina, which to all purposes is like the American elm, and can never be mistaken for the Chinese. But saplings and immature trees of the Chinese elm are a problem not to be tackled lightly. This elm should not be purchased in its leafless condition except on the word of a seller who is able to guarantee it.

In cultivation the Siberian elm is a rather weedy tree, at least so far as we know it. In has been used in street and avenue plantings in suburban sections where its low-branching habit is not absolutely objectionable and in some aspects of reforestation work it is valuable. As a specimen for individual planting, however, it has indifferent merits, except that it grows rapidly and stands almost anything. It is a far cry from the Siberian elm to the American and English elms, which are truly noble plants.

The Chinese elm also is rather weedy in youth, but this fault is compensated by an open and more irregular habit which is not without charm. A landscape architect in quest of a touch of exotic quaintness, and willing to take a long view of the matter, is well advised in using the Chinese elm as a specimen, taking good care that the tree has lots of room, because it will develop badly if crowded and in need of light. A superb specimen grows in Central park, New York, where it compares favorably with the the best of other ornamental trees.

So far as I know the Chinese elm grows rather slowly under ordinary city conditions, much more slowly than the Siberian. Notwithstanding this fact, it is my personal opinion that the Chinese elm should be more widely used, and in private plantings it should be preferred to any other except the American and the European elms.

MORE ON ASIATIC ELMS.

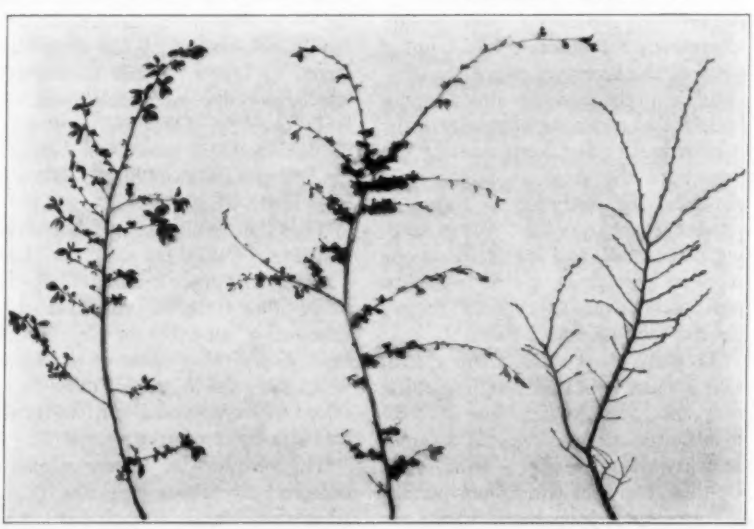
The confusion between Ulmus pumila and U. parvifolia is intensified by the fact that in common usage the name Chinese is applied indiscriminately to either species. Bailey's Cyclopedia of Horticulture, Rehder's Manual of Cultivated Trees and Shrubs, and Hortus, as well as Standardized Plant Names, classify parvifolia as the Chinese elm, but pumila receives less consistent treatment, for the Cyclopedia gives it no common name, Rehder and Hortus unite in calling it the dwarf elm, and Standardized Plant Names says dwarf Asiatic elm.

The name dwarf as applied to the species pumila does seem a misfit, for, besides the type or types that are dwarf, there seem to be several types or strains of pumila that grow to seventy-five feet or more in height. At the Morton Arborteum, except for the pumila used in hedge experiments, the growth of pumila in thirteen years from seed is between thirty and forty-five feet, and that could hardly be called dwarf.

In the trade pumila frequently has been called Siberian in addition to other names, and adoption of Siberian as the common name for the species would seem a good way to avoid the anomoly now existing. With Siberian meaning pumila and Chinese parvifolia, there would be an easily understood distinction in terminology.

Dr. Croizat brings out the characteristics of each species clearly. A few of the points of difference are emphasized by the illustration on this page. It shows two specimens of pumila on the left and one of parvifolia on the right. These specimens were gathered May 8 from 13-year-old trees at the Morton Arboretum. The center specimen showed the smallest leaf size of pumila that could be found on that date, and the one on the left showed the largest leaves. It is interesting to note that while all pumila had bloomed some two or three weeks previously, the specimen with the smaller leaves had the larger samaras and that they were bunched more closely, with the bunches nearer the crotches of the

[Concluded on page 12.]



Two Differing Species of Ulmus Pumila, and Ulmus Parvifolia at Right.

The Morton Arboretum

Members of A. A. N. to Visit Wonderful Collection of Woody Plants Developed Within the Past Fifteen Years

The day preceding the convention, Monday, July 12, after luncheon at the Naperville Nurseries as guests of Henry Bock, members of the American Association of Nurserymen will visit the Morton Arboretum, Lisle, Ill., about five miles east of Naperville and approximately eighteen miles west of the Chicago city limits.

With the assistance of his staff, C. E. Godshalk, superintendent of the arboretum, will conduct the visitors to and explain points of interest in the arboretum, but individual nurserymen are at liberty to seek the parts of the grounds containing material of most interest to them.

The Morton Arboretum has been in existence only fifteen years, but the results attained are worthy of a much more extended period. A number of specimens were already on the property chosen for the site of the arboretum; for example, in the western section on Lake road there is a perfectly shaped specimen of sugar maple with a spread of fifty-five feet and on the opposite side of the road stands an American elm covering an area eighty-five feet in diameter, but, except for such native growth, all plantings and all landscaping have been accomplished within fifteen years.

Every visitor at all interested in landscaping should look at Lake Jopamaca, which lies northwest of the administration building. It is difficult to realize that less than fifteen years ago, the drag-shovel operator dropped the last bucketful of soil on the irregular hills made from the soil excavated to form the present lake. The hills, the island and the lake shore were then raw earth without a green thing showing in the entire expanse. Today the lake and its surroundings look as natural as if that excavation had been made a century or more ago. It has to be seen to be appreciated, for the results are so far beyond expectations that the imagination fails to conceive that such results could actually be attained.

For those nurserymen interested in Asiatic elms, the visit to the arboretum will be an excellent opportunity to compare types and results. There is a forestry planting of these elms northeast of the administration building, near what is called the Japanese island, and within a short distance of the forestry planting are scattered specimens of both Ulmus pumila and U. parvifolia. On the road to the Morton residence, northwest of the administration building, is an isolated specimen of U. pumila arborea. The hedge collection, directly east of the administration building, includes plantings of U. pumila among the ninety clipped hedges of various materials.

In the same formal planting as the hedges are a collection of old-fashioned roses and the Illinois trial garden of the American Iris Society. A vine collection and a series of special plantations composed of trees and shrubs classified according to color and season of bloom, color of fruit, foliage and stems, habit of growth and structural characteristics are now being planted in the same locality.

Each nurseryman should be able to find something of interest and of value to him, for, since the first plantings were made in 1922, over 400,000 trees, shrubs and vines, embracing approximately 4,500 species, varieties and hybrids, have been planted. Considering the fact that there are probably not more than 6,000 species of woody plants which will endure the climate of northern Illinois, the opportunity offered the nurseryman is self-evident.

In determining the general plan of the arboretum, special emphasis was laid upon its usefulness to various allied groups interested in the assembled specimens. Trees and shrubs are grouped according to botanical classifications, so that related forms may be easily studied and compared; plants are arranged in geographical groups according to the lands of their origin; certain typical plant associations have been reproduced for the benefit of the ecologist, and there are 150 economic test plots of various forest trees. All plantings have been executed in accordance with recognized principles of landscape design, so that the entire development is harmonious and strictly unified.

The hawthorn collection, the planting of flowering plums and cherries, the Japanese group, the collection of evonymus and the honeysuckles, viburnums and elderberries, to name only a few of the individual groups, should attract many of the visiting nurserymen.

For identification purposes, all plants in the arboretum collections are labeled with embossed zinc tags giving their botanical names, accession and location numbers. The numbers refer to a card catalogue in the administration building, in which are given the location, origin and history of every species and variety represented. By means of these tags the visitor may easily secure all available information concerning any particular specimen.

An initial visit to the administration building for a map of the grounds and for directions for reaching particular plantings is advisable, but the visitor should not become so interested in the contents of the building that he forgets to make a tour of the grounds.

Joy Morton, the son of J. Sterling Morton, the founder of Arbor day, created and endowed the Morton Arboretum, and it is now under the control of a board of trustees personally appointed by him. The arboretum is a private institution with no federal, state, county or city affiliations, and its future development will be continued by the trustees in strict accordance with Mr. Morton's carefully outlined plans."

Mr. Morton's purpose in founding the arboretum was to offer to the people of the middle west a service of threefold nature, scientific, economic and cultural, where the nurseryman, landscape architect, forester, botanist and layman would find equal opportunities for study and research. The original declaration of trust establishing the arboretum sets out the purpose of "creating a foundation to be known as the Morton Arboretum, for practical, scientific research work in horticulture and agriculture, particularly in the growth

and culture of trees, shrubs and vines by means of a great outdoor museum arranged for convenient study of every species, variety and hybrid of the woody plants of the world able to support the climate of Illinois, such museum to be equipped with an herbarium, a reference library and laboratories for the study of trees and other plants, with reference to their character, relationship, economic value, geographical distribution and their improvement by selection and hybridization; and for the publication of the results obtained in these laboratories by the officials and students of the arboretum, in order to increase the general knowledge and love of trees and shrubs, and to bring about an increase and improvement in their growth and culture."

Results of arboretum experiments with new and noteworthy plant materials appear in the illustrated monthly publication, "The Bulletin of Popular Information."

The location of the arboretum in Du Page county is sufficiently removed from the city to escape the hazards of injurious smoke and gases. Topographically the site is ideal, for its 735 acres include both the alluvial valley of the east branch of the Du Page river and the adjoining hills. The requirements necessary for many plant types are provided by the wide variety of soil conditions included within its borders.

The administrative offices, information bureau, library and herbarium are housed in the new memorial administration building, which was erected in Mr. Morton's memory by his daughter, Mrs. Joseph M. Cudahy. In the library is found a choice collection of horticultural and arboricultural works, in addition to an extensive file of current publications pertaining to these subjects. The herbarium will eventually contain pressed specimens of the foliage, flowers and fruit of all woody plants which can be grown in this locality, as well as a collection of indigenous flora, including fungi, mosses, ferns, grasses, herbaceous and ligneous plants. Permission to examine material in the herbarium may be obtained at the office. The administration building and the main entrances to the arboretum are on state highway No. 53, three miles south of Roosevelt road, Glen Ellyn; one mile north of Ogden avenue, Lisle.

ROOTSTOCKS FOR PEACH.

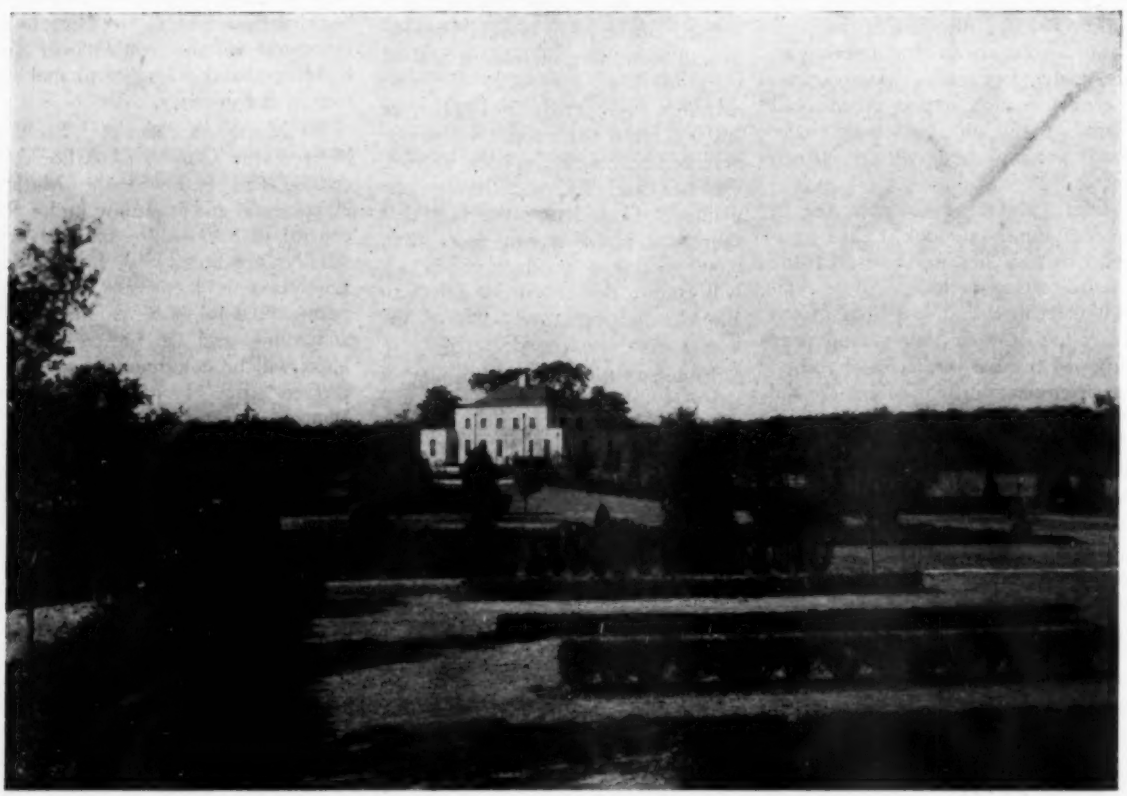
Two rootstocks for peaches, both so resistant to root knot that they are practically immune, have been introduced and tested by the United States Department of Agriculture for the light sandy soils of the south and southwest where the eelworm, or nematode, causes root knot on peaches and on many other crops. Both promote vigorous growth of peach trees budded on them—also normal bloom and fruit.

Seedlings of the Shalil peach, a variety grown in the extreme northwestern part of India, were reported resistant in 1934. Further tests have confirmed its desirability.

The second rootstock, a hybrid, is from a cross between the Quetta nectarine and the Bolivian cling peach, and is known only as F.P.I. 61302.

The Shalil may be propagated from seed. The hybrid propagates readily from root cuttings. Whether resistance to nematode attack would be reliable in seedlings of this hybrid has not been determined.

For best results with the Shalil, investigators in Georgia believe that seed should be grown in a colder,

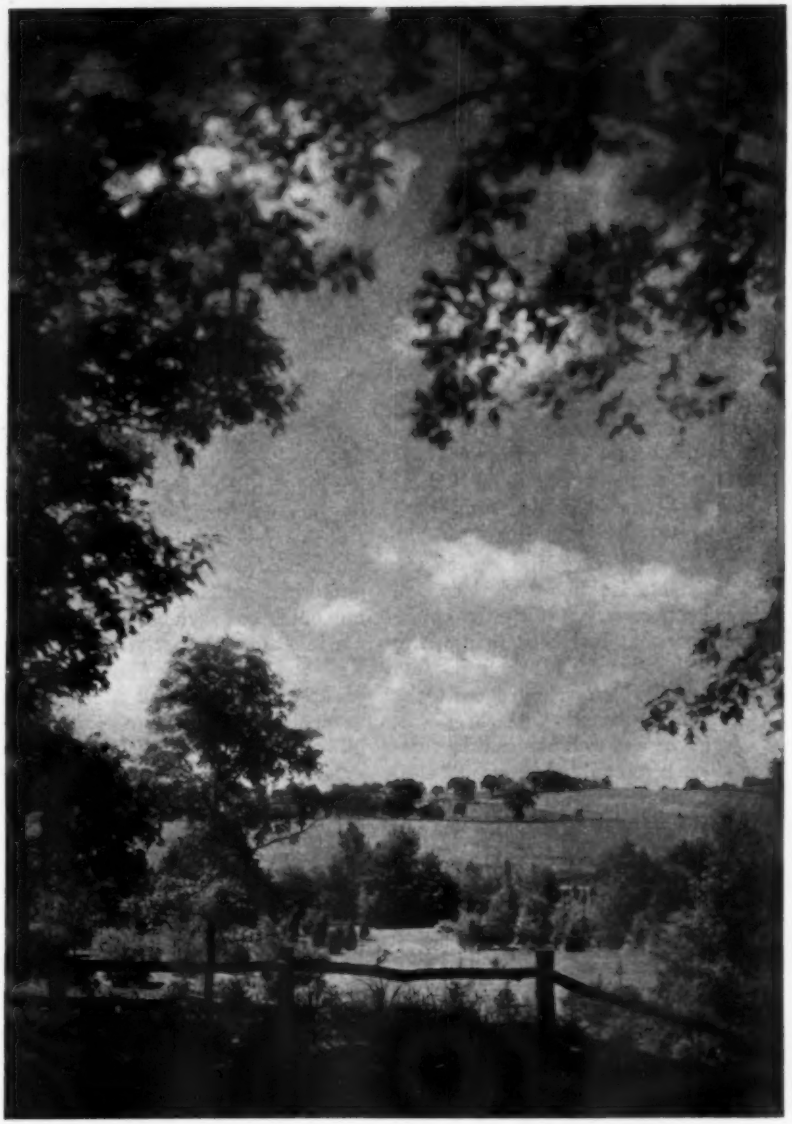


Trial Hedge Plantings at Morton Arboretum and Administration Building Beyond.

drier climate. In its native home, the climate is moderately cold in winter and rather dry in summer. Salt Lake City has a similar climate. In Georgia the Shalil holds its leaves late in the fall and blooms intermittently through the winter, so that many of the blossoms are frozen. Other varieties budded on Shalil roots behave the same as on any other peach roots, however, so far as season of development is concerned.

Root knot results from the attacks of eelworms that live in the soil and cause galls, or knots, on the roots of many crops and some shrubs and trees. Some plants are resistant, and by planting these as crops it is possible to starve the eelworms to a point where susceptible crops can be grown for a season or two without serious damage. This form of control, however, is not feasible with an orchard crop, such as peaches, which occupies the ground for years at a time, affording opportunity for the eelworms to multiply until they stunt the tree and prevent profitable production. No commercially practical method of control has been devised, except the use of rootstocks resistant to nematode injury.

Investigators working in the Georgia peach area have tested a considerable number of peach varieties and other similar fruits. Almond, apricot, plum and several native peach stocks proved undesirable, either because they caused a dwarfing of the peaches budded to them or because of eelworm injury. The Shalil and the hybrid, F.P.I. 61302, are expected to make possible continued production of peaches on eelworm-infested soils in areas otherwise well adapted to peach growing. At present, only limited supplies of these stock varieties are available.



View of the Du Page River Valley at the Morton Arboretum.

MILDEW ON LILACS.

An investigation to determine the relative abundance of the powdery mildew fungus, Microsphæra alni, on species and varieties of lilacs was conducted for four consecutive years, 1933 to 1936, at the Arnold Arboretum and the results are reported by Ivan H. Crowell in the May 1 issue of the Plant Disease Reporter, of the United States Department of Agriculture.

Examination of the plants was made in the early fall, when the mycelium of the fungus was fully developed and cleistothecia were present. The relative abundance of the fungus on the plants at the time of examination was in most cases remarkably constant. In a few instances, however, the variation was considerable and without apparent explanation; no report is made of these plants at this time. In order to simplify presentation of data, the average results of the four yearly observations are classified according to the following scheme: Group I, immune, no microscopic evidence of infection; Group II, slightly susceptible, small patches of mycelium sporadically scattered on leaves, cleistothecia not observed or sparingly produced; Group III, moderately susceptible, intermediate between Groups II and IV; Group IV, very susceptible, mycelium abundantly developed on leaves giving a distinct grayish cast to the host, cleistothecia abundantly developed.

Group I includes ninety-three species and varieties of syringa, of which sixty-three are varieties of Syringa vulgaris. Group II has 110 names; all but two are varieties of S. vulgaris. Group III names S. vulgaris only; seventy-five varieties in all. Group IV also names only S. vulgaris; twenty-nine varieties. The complete list of these species and varieties appear in the Plant Disease Reporter.

Elm Disease Control

Further Report on Investigations in Illinois Nurseries on Causes and Control of Elm Wilt

An investigation has been in progress in Illinois nurseries since 1931 to determine causes and possible control measures for the so-called elm wilt. This term is used by nurserymen and others to designate any wilting of elms, regardless of cause. Several fungi have been found to cause elm wilts; namely, coniothyrium, cytosporina, phoma and verticillium. A report on the tests of fungicides to control elm wilt from 1931 to 1934 was distributed in 1935 as biological notes No. 4 of the Illinois State Natural History Survey.

In 1935 a reorganization of the experiments looking toward control became necessary. Of the ten nursery plots that had been in use, five had to be abandoned, three because the trees had grown too large to be thoroughly dusted without power equipment and two because the trees were then too tall to be sprayed with the equipment available. Three new plots were selected and planned to provide comparative tests of dormant sprays and of new spray materials.

All experiments have been conducted upon American elms located in the midst of elm blocks being grown by nurseries as regular commercial production in co-operation with nursery owners. Both dormant and summer sprays and dusts have been used. Further report on the investigation is now given in biological notes No. 7, by J. C. Carter, of the section of applied botany and plant pathology of the Illinois State Natural History Survey, Urbana.

As a result of these experiments extending over five years and including more than 7,000 trees, the conclusion has been reached that all treatments giving any positive control of elm wilt involve either pruning or dusting. Every treatment involving sprays has given negative results.

The part played by pruning as a supplement to other treatments appears to be important. Although not always dependable and on an average only moderately effective by itself, pruning has a fairly consistent beneficial effect. It tends to increase the effectiveness of treatments which are themselves effective, as is the case with Kolodust and flotation sulphur dust, and it tends to lend value to treatments in themselves ineffective, as in the case of commercial Bordeaux and instant Bordeaux sprays. On the other hand, when used to supplement sulphur sprays it has increased greatly the ineffectiveness of these apparently ineffective sprays.

Commercial Bordeaux mixture and pruning, as a unit of treatment, are not sufficiently effective to justify their use merely for disease prevention, and the same may be said of pruning when used alone. Instant Bordeaux mixture when combined with pruning holds considerable promise, but needs more adequate testing. Both Kolodust and flotation sulphur dust are effective to a small degree when used alone, and in both cases this inherent effectiveness is increased in greater than expected proportions by supplementing the fungicides with pruning.

Although certain differences in results will be found between this report and the report made in 1935, the main conclusion remains the same. Summer applications of sulphur dusts are the only treatments that have served consistently to prevent new infections of elm wilt, and the effectiveness of these treatments is greatly enhanced by concurrent pruning.

As previously reported and as stated here, results point definitely to summer use of sulphur dusts for the prevention of the elm wilt disease in nursery plantings and indicate strongly that pruning out diseased parts of infected trees is a necessary supplement to the dusts if adequate prevention is to be secured. It has been noticed that healthy nursery elms grow more rapidly if they are treated with a fungicide several times each season. Since both copper sprays and sulphur sprays and dusts stimulate growth, and in this respect repay their cost, quite apart from the disease control they effect, the use of a fungicide is always desirable.

Sulphur dusts should be applied with a power duster, in order to develop a dust fog sufficient to cover all portions of trees being treated. It is desirable to dust in early morning or just after a light rain, while moisture is still on the foliage and when the air is nearly still. For best results, application of dusts should be made at regular intervals and frequently enough to maintain a complete protective covering on the foliage and wood. The new leaf growth that develops continually throughout the growing season should receive as much protection as possible. In most cases, dusting at 2-week intervals during late April, May and June, when rains are most frequent, and at 3-week intervals during July and August will reduce the number of new wilt cases which may occur during any one season and will at the same time give adequate control of leaf spot diseases.

NEW PLUM VARIETIES.

Modern methods of transportation that make available out of season an abundance of fresh fruit from other sections of the country and the insistance of consumers upon high quality are blamed by fruit specialists at the New York state experiment station as the chief causes for the decline of plum growing in the east during the past thirty years. Fruit growers there can recapture at least part of this market by growing the new and greatly improved varieties now available.

More than 300 plum varieties are under test in the station orchards, at Geneva, N. Y., and out of this lot the station has made a selection of the best from the standpoint of quality, size, color and season. The station is carrying on a plum-breeding project along with the testing of new and noteworthy varieties from other sources. Planting stocks of some of the best of these varieties can be obtained from the New York State Fruit Testing Association, at Geneva, which coöperates with the station in the propagation and distribution of new and noteworthy fruits not yet readily obtainable from commercial sources.

The plum varieties on the association list this spring include Beauty, Formosa and Santa Rosa, among the early Japanese plums, and DeMontfort, Early Laxton, Imperial Epineuse, California Blue, Monitor, Surprise, Washington, Yakima and Red Wing, representing European and American types of plums.

Chemicals Hasten Root Growth

Second and Concluding Article Analyzing the Facts about Plant Hormones and Growth-Promoting Substances—By L. C. Chadwick

When commercial, trade-name solutions of the synthetic growth substances are used, directions as given should be carefully followed. Dilutions should be made as suggested. Some of the precautions mentioned by these concerns will be mentioned later. Where salts of the growth substances are used by commercial growers, materials will probably be purchased in gram lots. There are so many influencing factors that it is difficult to say how many cuttings a gram of the growth substances will treat. As a guide, if used at the rate of two milligrams per hundred cubic centimeters, a gram of salt would make approximately fifty-three quarts of solution and be sufficient for somewhere around 50,000 cuttings if the solution is used only once. At the rate of five milligrams per hundred cubic centimeters one would have approximately twenty-one quarts of solution sufficient to treat about 20,000 cuttings. If only a small number of cuttings were to be treated at a time, it would be best to make up only the amount of solution necessary. This may require the weighing of only small quantities of the salt. Normally, commercial firms would not have scales of a nature to accomplish this. I should suggest in this case the salt be taken to a local druggist to weigh the necessary quantity. Several small packets might be prepared at a time or the salt placed in small vials that could be tightly stoppered.

Having the desired quantity of salt, it should be dissolved in a few drops of alcohol. It should then be diluted with water of the required content. Stock solutions might be prepared, being diluted at the time needed. One commercial concern advises with their product that in making up the solution the water should be added to the concentrate and stirred thoroughly. Do not add the concentrate to the water.

It is difficult to ascertain the best concentration and length of treatment for different cuttings. Where this has been determined at Ohio State University it is given in the table below. In general it may be said that for softwood cuttings of such plants as chrysanthemums, carnations and geraniums one to three milligrams per hundred cubic centimeters with treatments of one to five hours will be sufficient. On the other hand, such cuttings as those of evergreens and other more difficult subjects may require five milligrams per hundred cubic centimeters for periods of eighteen to twenty-four hours. Many factors influence these treatments as will be mentioned later.

It has been suggested for most of the commercial preparations that the solutions should be used only once and then discarded. Tests at Ohio State University with the salt solutions have shown that they can be used a number of times, often five or six, without any appreciable difference in their stimulative action. Solutions have been left in open containers in the propagating house between treatments. It is well to suggest, however, that this be checked carefully if considerable time lapses between treatments.

Cuttings are made as usual, letting as much leaf surface remain as possible and still keeping the cutting in a turgid condition. The cuttings are placed in the solutions so that three-fourths to one inch of their basal ends are covered. Upon their removal from the solution, rinse the basal ends in water and stick at once in the medium in the usual way. Management of the cuttings during the rooting period follows the usual practices.

It is assumed that the solution must be taken up by the cuttings to be effective. Absorption depends upon such atmospheric conditions as light, humidity and temperature. Amount of foliage retained and kind of cutting are also factors. Statements regarding these factors can be only relative. One would assume that a large leaf surface would mean an ample absorption. At Ohio State University, cuttings have been treated in the propagating house where there were ample light, but not direct sun, a temperature of about 60 to 65 degrees Fahrenheit and humidity of fifty to sixty-five per cent. These conditions seem to have been favorable. A lower humidiy and higher temperature would account for greater absorption, but little change from the above is recommended.

It is not necessary here to give all the results of interest to commercial propagators that have been published. Many of these results (Hitchcock and Zimmerman, Cooper and DeFrance) have been published. These reports have been for such cuttings as those of chamæcyparis, juniperus, taxus, thuja, buxus, daphne, evonymus, ilex, kalmia, rhododendron, azalea, malus, magnolia, photinia, chrysanthemum, coleus, gardenia, lantana, citrus, vitis, vaccinium and many others. Considerable work has been done with greenhouse plants at Ohio State University. Tests have been run on cuttings of such plants are bouvardia, Boston Yellow daisy, carnation, a number of varieties of chrysanthemum, genista, gardenia, geranium, a number of varieties of hydrangea, lantana, oleander and others. Because this material would be of little interest to the average nurseryman, it has been omitted from the table. Consequently, the results reported here are those that have been recorded from tests at Ohio State University on woody ornamental plants and have not been published previously.

Cuttings were taken and handled according to common commercial practice except for some variation in the time of taking and the treatment as indicated. It will be noticed by a perusal of the table that indolebutyric acid is the solution usually recommended. This has been especially true for cuttings of greenhouse plants and appears to have been more pronounced with the woody cuttings as they are being rechecked. Others have been used in addition, but have seldom proved as effective. In the cases where indoleacetic acid is given, it does not necessarily mean that it was better than indolebutyric acid, as in these cases indolebutyric acid was not used in the tests. The concentrations and length of treatments may be considered tentatively the best as far as tests at Ohio State University have gone. Many others have been checked, but still more work remains to be done.

As would be expected, a weaker concentration and shorter periods of time have been found effective with cuttings of succulent greenhouse plants

than are needed for cuttings of woody plants. The most recent tests have indicated with greenhouse plants that a solution of one to three milligrams per hundred cubic centimeters of water with treatments of one to five hours is sufficient. The same also may be found to be true with softwood cuttings of shrubs after further investigation. A good propagator will soon be able to judge the general condition of his cuttings and treat accordingly; the more mature and harder the wood, the stronger the concentration and longer the length of treatment. It begins to appear, however, that the concentrations can be weaker and the periods of treatment shorter than indicated in the early reports.

Few plants really difficult to root have been tested. The recorded data will show that the benefits derived from the treatments, especially with greenhouse plants, have been largely two-fold, (1) quicker rooting, and (2) a more abundant root system. The saving in time of rooting with treatment will vary from a few days to as much as two to three weeks. It is doubtful if a period of a few days' difference in the rooting time would be an important factor in the minds of most commercial propagators. The more uniform and abundant root system on the treated cuttings has been striking in many cases. To the good propagator this might not be considered especially important, since his present method of handling usually results in a root system sufficient to produce a ready and continuous response in the cuttings leading to normal plants. Poor propagators, however, may find that the treatment with growth substances may overcome some of their faults in handling cuttings and produce a more uniform group of plants.

The results of treatments with synthetic growth substances on cuttings of woody plants have not been so striking; especially is this true with types really difficult to root. Few, if any, reports indicate the fact that plants which have not been rooted from cuttings before can be rooted satisfactorily commercially with treatment. Softwood cuttings of woody plants have responded, but these normally give the good commercial propagator little trouble. A saving of a period of a week to ten days, or even more, would mean little to the average nurseryman. Some of the most striking results have been with the broad-leaved evergreens. DeFrance has recently published a paper on the rooting of cuttings of Daphne Cneorum. The results on narrow-leaved evergreens at Ohio State University have given no indication of being better than checks. This may be due to the fact that the best synthetic growth substance was not used or the treatment was not satisfactory. Cuttings of the Andorra juniper rooted well in twenty-one days, much quicker than usual, but the checks were just as good as the treated cuttings. With the taxus species and varieties indicated, the time of rooting was as long as or longer than is usual in commercial nurseries, and the roots on the treated cuttings were but little better than those not treated. The treatments as tried have given no indication so far of overcoming the uneven rooting, which is so common, of Pfitzer's juniper, or to be influential in the rooting of such plants as Juniperus virginiana Keteleeri, Picea Engelmanii, Picea Omorika and others, normally not propagated commercially from cuttings. However, other treatments may be found that will be effective.

Tests at Ohio State University and some others that the writer has observed have given little indication that treatment of deciduous hardwood cuttings without leaves will be effective. The common ninebark and some of the privets have responded to some extent, but no stimulation has resulted from treating hardwood cuttings of such plants as Carpinus Betulus, Cotoneaster foveolata, Malus Arnoldiana, Malus purpurea, Myrica caroliniensis, Quercus Robur fastigiata, Rhamnus Frangula and a number of others. Other than commercial methods of handling might prove effective.

Precautions and Conclusions.

The present status of the work would indicate that the use of synthetic growth substances is not a cure-all for all difficulties involved in the propagation of plants by cuttings. The materials should be used with caution and directions, wherever possible, followed carefully. Much more experimental work must be done before all the questions concerning the use of these materials can be answered. The commercial propagator should proceed accordingly with their use.

Variations are bound to occur following the use of these materials by individual propagators. Atmospheric and cultural factors will vary, leading to different results. As indicated previously, the amount of leaves on the cutting will change the results. Other tests have shown that the amount of light preceding the time of taking the cuttings will influence their reaction to treatments. It is possible that cuttings taken after a period of dark, cloudy days will have to be treated with a stronger solution or for longer periods, or both, while cuttings taken during a prolonged sunny period will respond to a weaker concentration and a shorter treatment. I should expect cuttings

TREATMENT OF CUTTINGS WITH GROWTH SUBSTANCES

Plant	Time of taking	Days for rooting	Solution	Concentration mg. per 100 cc.	Length of treatment in hours
Woody Ornamentals					
Acanthopanax pentaphyllum	8/19	55	Indolebutyric acid	10	20
Berberis Thunbergii atropurpurea	8/12	39	Methyl Indolepropionate	10	24
Evonymus europæus ..	8/18	46	Indolebutyric acid	10	24
Evonymus japonicus variegatus	2/2	25	" "	5	8
Evonymus radicans minimus	8/12	13	" "	10	24
Evonymus radicans vegetus	8/18	38	" "	10	21
Ilex glabra	8/7	31	" "	10	31
Juniperus horizontalis plumosa	2/4	21	" "	2-5	18-24
Physocarpus opulifolius (dormant)	11/14	47	Indoleacetic acid	5	40
Pyracantha coccinea pauciflora	11/11	50	" "	5	18-24
Taxus baccata Washingtonii	1/16	94	" "	10	12
Taxus cuspidata	1/16	94	" "	5	12
Taxus cuspidata nana.	1/16	94	" "	5	12
Taxus media Hicksii..	1/16	94	" "	5	12
Weigela hybrida	8/28	16	Indolebutyric acid	5	24

of greenhouse plants taken from November to May would respond differently. Possibly the same will be true for cuttings of woody shrubs taken from early June to late August.

It should be understood by commercial propagators that because cuttings of a certain plant respond to a treatment of indolebutyric acid, it is no assurance that similar cuttings will respond to a corresponding treatment of indoleacetic acid. Variations will occur and must be expected.

Commercial propagators must decide for themselves whether the benefits derived from the treatments are important enough to warrant the practice. Is the saving of a few days or a week important? Will the production of a few more roots lead to a more rapid growth and a better mature plant? Little information is available at present on what effect the growth substances have on the growth and final development of the plant.

In face of the facts mentioned in the foregoing discussion it is apparent that much work remains to be done before the real importance of the synthetic growth substances in the commercial field is known.

Bibliography.

For those who are interested in obtaining more information regarding the nature and importance of plant hormones and synthetic growth substances, the following bibliography, which is far from complete, is given. Boysen-Jensen's book on "Growth Hormones in Plants" as translated by George S. Avery, Jr., and Paul R. Burkholder, is the most comprehensive review of the work yet published. A review of much of the work of the foreign investigators is included. The bibliography follows:

Avery, George S., P. R. Burkholder and Harriet B. Creighton. Plant hormones and mineral nutrition. Proc. Natl. Academy of Sciences 22:673-678. 1936.

Avery, George S., P. R. Burkholder and Harriet B. Creighton. Production and distribution of growth hormone in shoots of æsculus and malus, and its probable role in stimulating cambial activity. Amer. Jour. Botany 24: 51-58. 1937.

Boysen-Jensen, P. Growth hormones in plants. Authorized translation and revision by G. S. Avery, Jr.; P. R. Burkholder, H. B. Creighton and B. A. Scheer. McGraw Hill, New York, 268 pp.

Cooper, William C. Hormones in relation to root formation on stem cuttings. Plant Physiology 10: 789-794. 1935.

Cooper, William C. Transport of root-forming hormone in woody cuttings. Plant Phys. 11: 779-794. 1936.

DeFrance, J. A. Propagation of Daphne Cneorum by cuttings. Florists' Exchange, March 20, 1937.

Dolk, H. E., and K. V. Thimann. Studies on the growth hormone of plants. Proc. Natl. Acad. Sciences 18: 30-46. 1932.

Hitchcock, A. E., and P. W. Zimmerman. Effect of growth substances on the rooting response of cuttings. Contr. Boyce Thompson Inst. 8: 63-80. 1936.

Thimann, K. V. The mechanism of the action of the growth substance of plants. Proc. Royal Soc. London Bul. 113: 126-149. 1933.

Went, F. W. Auxin, the plant growth hormone. Botanical Review 1: 162-182. 1935.

Zimmerman, P. W., and A. E. Hitchcock. The response of roots to root-forming substances. Contr. Boyce Thompson Inst. 7: 439-447. 1935.

Zimmerman, P. W., A. E. Hitchcock and Frank Wilcoxon. Several esters as plant hormones. Contr. Boyce Thompson Inst. 8: 105-112. 1936.

APHIS PLENTIFUL.

Cool, damp weather, such as we have had this spring, checks the activities of the natural enemies of plant lice and favors their rapid increase. There are many different kinds of plant lice, or aphis, and, although they are soft-bodied and easily killed, they multiply with astounding rapidity under favorable conditions. The lady beetles live to a great extent on plant lice and a number of tiny parasites find in the bodies of individual aphis abundant sustenance for a complete life cycle, but in spite of natural checks, aphis frequently become abundant.

[From New York American]

Tender rose shoots have thick clusters of aphis. Two species of plant lice are occasionally abundant on birch, both having witch-hazel as an alternative host. The undersides of elm leaves are attacked by pale green lice. The woolly beech leaf aphis, the Norway maple aphis and the tulip tree aphis are common and frequently abundant.

These little insects are easily controlled by spraying, but it is essential to spray early and check the pests before serious injury has been caused.

WINTER INJURY OF PINES.

Several cases of injury to white pines and firs under lawn or park-like conditions, which started with wilting of clusters of needles on the tips, subsequent drying and a condition which indicated partly dried foliage, have been reported. This condition extended to include the dying and browning of much of the foliage on branches or clusters of branches and in time much of the top. The thin bark of the trunks shrunk in strips several inches wide and extending much of the length of the stem, the cambium beneath being dead or nearly so; there was dead cambium under the thicker bark and the root hairs were mostly dead.

The light snowfall last winter permitted deeper freezing of the soil than usual, which easily resulted in frozen rootlets when there was rapid evaporation from the top during warm winter days. The damage in large part was to trees standing in light soil with little of the pine needle mulch which ordinarily protects the roots. There was no evidence of insect attack or the presence of disease. The obvious preventive is to keep trees growing by judicious feeding, especially in light soils, and where necessary, to supply needed mulch with pine needles from the forest, leaves or peat moss.

Charlie Chestnut

Gives Inside Stuff on Mail Order Business

Quite a few nurserymen are after me to explain the nursery male order bus. and tell how the big nursery companys make out at it.

As I am hired by the editor of this here paper to go to work and give the customers the inside stuff on the nursery bus. I have decided not to hold back nothing.

The first point to remember when you are selling with agents is to knock the male order nurserymen with there cheep stock. When you are male order, knock the agents and there high prices. Bear down hard on the big percent the agents get and how you sell so cheep in the male order on acct. of you dont have to pay a big per cent. Tell how you practically sell for cost and only charge for postage and handling to interduce your stuff. Quite a few people will believe you, and that is the krux of the male order.

The first thing to do is to go to work and put a few lines in a paper as follows, "Genuine weeping African Euclyptus thrown in free without charge with each and every collection for 79c." By giving a free Euclyptus you can work off anything that aint moving, as in the male order bus. it is pretty well understood that a certain amount of substituting is expected. Now to get back to the collection idea. Dont word it too plain. Then you can put in a few pieplant roots or some razberry canes or whatever you are long on to fill up the box. Another thing, dont mention no sizes. Some people expect too much for 79c. The regulation size for male order apples is 12 to 15 inches so it is just as well not to make a big point of it.

I am a great believer in pricelists and catalogs. If you can go to work and get one or two pictures to put in the catalog it is a big help. I remember one time we had a picture of a tree peony. The next year we was out of it so we called it a weeping mulberry. It is surprising how you can make a picture work for a lot of different stuff. If you can get a picture of any old hot dog stand to put in the catalog to show where you started in 1902 and then another one of your place today, it is considered good sound male order system. Tell how you built it up by living a good christian life and always giving a square deal. Some male order men couldnt get along without a picture of the boss in his shirt sleeves and suspenders showing that he is a ordinary feller and looks at all the 79c collection orders personal.

There is generally a lot of mail turns up in the male order business, that dont mean nothing. When you open the mail if a money order dont shake out of the envelope you may just as well pitch it into the waste basket. Lots of people will think you aint got nothing to do but answer letters and you will get a lot like this

"Gents: I have got a good notion to fix up my place with a lot of stuff. Here is a drawing of my place. Tell me where to move all the shrubbery that I already have in to make a good landscape. Send me a plan and I will send you a order for your rose collection of 3 for 49c."

At first you will think it is necessary to answer in detail but after you have been at it for a while, you will know what to do.

Another good point in the male order is the way you can get along without any nursery. First you go around to all the conventions and buy up all the runts and undersize items you can get cheep. You can most likely get aholt of some glad bulbs that some nursery was going to throw out. Any from the size of good garden peas up to the size of a marble is about right. Sometimes you can run onto a lot of stuff that dont sell good because it dont have a good name. Here is where a good male order man can make some good money. You can go to work and pick out a fancy name write up a good sounding description and put it in the pricelist. If the name is good and the words you use to tell about it is fancy words you can sell it all out easy.

With this system you dont need no nursery. You can get an old barn, buy a 2nd hand stove and stay in the barn all winter putting up the collections. When spring comes and the other nurserymen is out in the hot sun cultivating and planting you are all through for the season and you can take it easy till the next spring. I get to wondering sometimes if the male order aint the best after all.

I knew a male order man one time that sure had a pretty set up. He had a farm that wasnt doing him any good and one day he was out in the sweet clover in the spring just taking a walk around when he got the notion that the sweet clover blossom was a mighty pretty flower. He made some inquiries and found out the scientific name of this sweet clover was called Japanese Lespedeza and that give him the big idea. He put a ad in a paper or two as follows: "The beautiful ancient Japanese Lespedeza, fragrant white flowers, hardy and fast grower. Trial package, 2 plants for 69c."

Well sir in two years he took in enough to pay off the mortgage and now he spends every winter in Florida. He says some customers complained, but they couldnt do nothing because he sent just as advertised. He says the trouble is with a lot of male order men they dont know a good thing when they see it.

MORE ON ASIATIC ELMS.

(Concluded from page 4.)

twigs than on the specimen with larger leaves. Although the specimen of parvifolia on the left represents the greatest development of parvifolia that could be found and was taken at the same time as and within a short distance of the pumila specimens, the leaf buds were not open, but were just swelling enough to show a faint green at the tips and there are no flower buds. These specimens illustrate Dr. Croizat's statements in regard to habits of blooming and producing leaves.

By one authority the statement is made that parvifolia has autumn color of red or purple, but that in milder climates the leaves remain green into the winter. Dr. Croizat's experience is that parvifolia retains its full green color until the first killing frost arrives and then, overnight, the leaves shrivel and brown.

As in some other species of plant life, there seem to be a number of distinct types or strains of pumila. Specimens of pumila at Morton Arboretum range from vase-shaped to fastigiate, in addition to the dwarf type used in hedge plantings. Minor variations observed in different plantings may be attributed to variations in type or strain.

Native Plants of Garden Value

Ninth in Series of Articles on Neglected Opportunities for Nurserymen in Native Material—By C. W. Wood

Little interest is aroused by the erysimums, and few of our native species are of value to the gardener. Speaking generally, the blister cresses are unsatisfactory in flower color, the yellow so often carrying a tinge of green that gives them a dingy look or, if it lacks that undesirable shade, the yellow is apt to be harsh. When a good color is found, therefore, it should be cherished. Also, the plants are apt to be short-lived and often they are tender to the cold of northern climates. With all these restrictions, the genus is not likely to be well represented in gardens. Just two native kinds, E. asperum and E. nivale, have shown desirable traits in my trials. The first of these, the western wallflower, is variable as to color, coming in shades of yellow, some of which are not very pleasing; in orange yellow, and in quite clear orange. Purple is also mentioned in the floras, but that color seldom appears in garden cultures. The plant is slender, growing to a height of eighteen inches, and blooms here during June and July. E. nivale is from the alpine regions of the Rockies; it grows about six inches high and has heads of lemon yellow, fragrant flowers in spring. Both are easily grown from seeds, flowering the first year if started early, and grow readily under common garden treatment, although the latter should have a little more than the average amount of moisture. E. asperum could, no doubt, be made into a more desirable plant by selection.

Eriophyllum.

Of the dozen or so species of eriophyllum found in the northwest, E. cæspitosum is the only one I have been able to get. It is somewhat variable, according to the material I have had, but all forms were desirable. A typical plant grows six to eight inches high under my conditions, with much-divided foliage which is densely woolly beneath, and has masses of yellow, composite flowers, sometimes as much as two inches across, in June. Like many of the compositæ, it is not a difficult plant to grow, doing well in sun in any garden soil that is well drained. If any part of its culture is to be stressed, it should be drainage, for I find the plant dying off in spring after the snow covering has gone unless moisture drains rapidly away. This is another of the much-named genera, having been known as actinella, actinolepis and bahia, in addition to eriophyllum.

Eritrichium.

I know of nothing better to test the mettle of the most experienced and skillful plantsman than that gem of alpines, eritrichium. The botanists' concern over its proper classification interests us not so much as do the problems of getting the plants and keeping them after we are fortunate enough to possess them. My experience with the genus has been a series of disasters to the plants and leads to the opinion that they will never be fit subjects for eastern United States. We should not give up trying, however, for it may be that some one will work out a system of handling the plants under eastern conditions, perhaps as biennials grown in pots in a cold house. Even that would be better than not having the ravishing beauties at all. It appears from the literature that they should have constant root moisture and shelter from atmospheric dampness during fall, winter and spring, but more than that is necessary, because I have given them all that and much more and have had no success.

Eritrichium nanum aretiodes (E. argenteum of Rydberg), the western American representative of E. nanum, differs not a great deal from the latter and is just as hard to grow, so far as I can see. Our native plant makes dense tufts of silky foliage an inch or so thick, which are beautiful ornaments in themselves, but the plants must be beautiful when they are studded all over with bright blue forget-me-nots. That is the appearance they are supposed to have, according to the fortunate few who have had the plant in bloom and the ones who have seen it on the highest peaks of the Rockies.

I have never had E. Howardii, a plant that is mentioned in floras of the northwest. Its description sounds interesting and it might make an easy garden subject. That it grows on dry hills from Montana to Washington indicates that we ought to be able to grow it without much trouble. The floras reveal the fact that it has been referred to cynoglossum by some botanists and to omphalodes by others; so it may be known locally under either of these names. Will some western reader please report on the plant, indicating particularly its desirability as a garden plant?

Erythronium.

Erythroniums, the dogtooth violets, or adder's-tongues, are interesting to the plant student and they are, for the most part, good ornaments for the garden. It is true that the quickly yellowing leaves of a few, as the common adder's-tongue, Erythronium americanum, of eastern woodlands, make more mess than their rather sparse flowers make beauty. This paucity of flowers seems to be characteristic of the kinds that reproduce vegetatively rather than by seeds. But even in the case of our eastern species, which multiply by division of the bulbs rather than by seedage, the plants are useful as undercovers in shrub plantings and in woodlands. Aside from the one named before and its near relative, E. albidum, no other American species of my acquaintance except E. Hartwegii, from California, and E. propullans, a rose-colored form from Minnesota, produce offsets; the rest depend upon seeds as a means of reproduction.

The common adder's-tongue and the white form, E. albidum, need no comment here. The other two eastern forms, E. mesachoreum and E. propullans, are seldom mentioned in plant lists and are little known even in their natural range. If you think the latter is an overstatement, try to get stock of E. mesachoreum from a commercial grower in Missouri, Kansas, Nebraska or Iowa, to which states its range is restricted, according to the floras. Its leaves are narrow, lance-oblong, not mottled, and the flowers are bluish lavender. It is the one eastern species that bears few or no basal offsets. The other, which the floras say is found only in Minnesota and adjacent parts of Canada, has bright rose flowers, yellowish at the base.

Two western species, E. Hartwegii

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The first point to remember when you are selling with agents is to knock the male order nurserymen with there cheep stock. When you are male order, knock the agents and there high prices. Bear down hard on the big percent the agents get and how you sell so cheep in the male order on acct. of you dont have to pay a big per cent. Tell how you practically sell for cost and only charge for postage and handling to interduce your stuff. Quite a few people will belięve you, and that is the krux of the male order.

The first thing to do is to go to work and put a few lines in a paper as follows, "Genuine weeping African Euclyptus thrown in free without charge with each and every collection for 79c." By giving a free Euclyptus you can work off anything that aint moving, as in the male order bus. it is pretty well understood that a certain amount of substituting is expected. Now to get back to the collection idea. Dont word it too plain. Then you can put in a few pieplant roots or some razberry canes or whatever you are long on to fill up the box. Another thing, dont mention no sizes. Some people expect too much for 79c. The regulation size for male order apples is 12 to 15 inches so it is just as well not to make a big point of it.

I am a great believer in pricelists and catalogs. If you can go to work and get one or two pictures to put in the catalog it is a big help. I remember one time we had a picture of a tree peony. The next year we was out of it so we called it a weeping mulberry. It is surprising how you can make a picture work for a lot of different stuff. If you can get a picture of any old hot dog stand to put in the catalog to show where you started in 1902 and then another one of your place today, it is considered good sound male order system. Tell how you built it up by living a good christian life and always giving a square deal. Some male order men couldnt get along without a picture of the boss in his shirt sleeves and suspenders showing that he is a ordinary feller and looks at all the 79c collection orders personal.

There is generally a lot of mail turns up in the male order business, that dont mean nothing. When you open the mail if a money order dont shake out of the envelope you may just as well pitch it into the waste basket. Lots of people will think you aint got nothing to do but answer letters and you will get a lot like this

"Gents: I have got a good notion to fix up my place with a lot of stuff. Here is a drawing of my place. Tell me where to move all the shrubbery that I already have in to make a good landscape. Send me a plan and I will send you a order for your rose collection of 3 for 49c."

At first you will think it is necessary to answer in detail but after you have been at it for a while, you will know what to do.

Another good point in the male order is the way you can get along without any nursery. First you go around to all the conventions and buy up all the runts and undersize items you can get cheep. You can most likely get aholt of some glad bulbs that some nursery was going to throw out. Any from the size of good garden peas up to the size of a marble is about right. Sometimes you can run onto a lot of stuff that dont sell good because it dont have a good name. Here is where a good male order man can make some good money. You can go to work and pick out a fancy name write up a good sounding description and put it in the pricelist. If the name is good and the words you use to tell about it is fancy words you can sell it all out easy.

With this system you dont need no nursery. You can get an old barn, buy a 2nd hand stove and stay in the barn all winter putting up the collections. When spring comes and the other nurserymen is out in the hot sun cultivating and planting you are all through for the season and you can take it easy till the next spring. I get to wondering sometimes if the male order aint the best after all.

I knew a male order man one time that sure had a pretty set up. He had a farm that wasnt doing him any good and one day he was out in the sweet clover in the spring just taking a walk around when he got the notion that the sweet clover blossom was a mighty pretty flower. He made some inquiries and found out the scientific name of this sweet clover was called Japanese Lespedeza and that give him the big idea. He put a ad in a paper or two as follows: "The beautiful ancient Japanese Lespedeza, fragrant white flowers, hardy and fast grower. Trial package, 2 plants for 69c."

Well sir in two years he took in enough to pay off the mortgage and now he spends every winter in Florida. He says some customers complained, but they couldnt do nothing because he sent just as advertised. He says the trouble is with a lot of male order men they dont know a good thing when they see it.

MORE ON ASIATIC ELMS.

(Concluded from page 4.)

twigs than on the specimen with larger leaves. Although the specimen of parvifolia on the left represents the greatest development of parvifolia that could be found and was taken at the same time as and within a short distance of the pumila specimens, the leaf buds were not open, but were just swelling enough to show a faint green at the tips and there are no flower buds. These specimens illustrate Dr. Croizat's statements in regard to habits of blooming and producing leaves.

By one authority the statement is made that parvifolia has autumn color of red or purple, but that in milder climates the leaves remain green into the winter. Dr. Croizat's experience is that parvifolia retains its full green color until the first killing frost arrives and then, overnight, the leaves shrivel and brown.

As in some other species of plant life, there seem to be a number of distinct types or strains of pumila. Specimens of pumila at Morton Arboretum range from vase-shaped to fastigiate, in addition to the dwarf type used in hedge plantings. Minor variations observed in different plantings may be attributed to variations in type or strain.

Native Plants of Garden Value

Ninth in Series of Articles on Neglected Opportunities for Nurserymen in Native Material—By C. W. Wood

Little interest is aroused by the erysimums, and few of our native species are of value to the gardener. Speaking generally, the blister cresses are unsatisfactory in flower color, the yellow so often carrying a tinge of green that gives them a dingy look or, if it lacks that undesirable shade, the yellow is apt to be harsh. When a good color is found, therefore, it should be cherished. Also, the plants are apt to be short-lived and often they are tender to the cold of northern climates. With all these restrictions, the genus is not likely to be well represented in gardens. Just two native kinds, E. asperum and E. nivale, have shown desirable traits in my trials. The first of these, the western wallflower, is variable as to color, coming in shades of yellow, some of which are not very pleasing; in orange yellow, and in quite clear orange. Purple is also mentioned in the floras, but that color seldom appears in garden cultures. The plant is slender, growing to a height of eighteen inches, and blooms here during June and July. E. nivale is from the alpine regions of the Rockies; it grows about six inches high and has heads of lemon yellow, fragrant flowers in spring. Both are easily grown from seeds, flowering the first year if started early, and grow readily under common garden treatment, although the latter should have a little more than the average amount of moisture. E. asperum could, no doubt, be made into a more desirable plant by selection.

Eriophyllum.

Of the dozen or so species of eriophyllum found in the northwest, E. cæspitosum is the only one I have been able to get. It is somewhat variable, according to the material I have had, but all forms were desirable. A typical plant grows six to eight inches high under my conditions, with much-divided foliage which is densely woolly beneath, and has masses of yellow, composite flowers, sometimes as much as two inches across, in June. Like many of the compositæ, it is not a difficult plant to grow, doing well in sun in any garden soil that is well drained. If any part of its culture is to be stressed, it should be drainage, for I find the plant dying off in spring after the snow covering has gone unless moisture drains rapidly away. This is another of the much-named genera, having been known as actinella, actinolepis and bahia, in addition to eriophyllum.

Eritrichium.

I know of nothing better to test the mettle of the most experienced and skillful plantsman than that gem of alpines, eritrichium. The botanists' concern over its proper classification interests us not so much as do the problems of getting the plants and keeping them after we are fortunate enough to possess them. My experience with the genus has been a series of disasters to the plants and leads to the opinion that they will never be fit subjects for eastern United States. We should not give up trying, however, for it may be that some one will work out a system of handling the plants under eastern conditions, perhaps as biennials grown in pots in a cold house. Even that would be better than not having the ravishing beauties at all. It appears from the literature that they should have constant root moisture and shelter from atmospheric dampness during fall, winter and spring, but more than that is necessary, because I have given them all that and much more and have had no success.

Eritrichium nanum aretiodes (E. argenteum of Rydberg), the western American representative of E. nanum, differs not a great deal from the latter and is just as hard to grow, so far as I can see. Our native plant makes dense tufts of silky foliage an inch or so thick, which are beautiful ornaments in themselves, but the plants must be beautiful when they are studded all over with bright blue forget-me-nots. That is the appearance they are supposed to have, according to the fortunate few who have had the plant in bloom and the ones who have seen it on the highest peaks of the Rockies.

I have never had E. Howardii, a plant that is mentioned in floras of the northwest. Its description sounds interesting and it might make an easy garden subject. That it grows on dry hills from Montana to Washington indicates that we ought to be able to grow it without much trouble. The floras reveal the fact that it has been referred to cynoglossum by some botanists and to omphalodes by others; so it may be known locally under either of these names. Will some western reader please report on the plant, indicating particularly its desirability as a garden plant?

Erythronium.

Erythroniums, the dogtooth violets, or adder's-tongues, are interesting to the plant student and they are, for the most part, good ornaments for the garden. It is true that the quickly yellowing leaves of a few, as the common adder's-tongue, Erythronium americanum, of eastern woodlands, make more mess than their rather sparse flowers make beauty. This paucity of flowers seems to be characteristic of the kinds that reproduce vegetatively rather than by seeds. But even in the case of our eastern species, which multiply by division of the bulbs rather than by seedage, the plants are useful as undercovers in shrub plantings and in woodlands. Aside from the one named before and its near relative, E. albidum, no other American species of my acquaintance except E. Hartwegii, from California, and E. propullans, a rose-colored form from Minnesota, produce offsets; the rest depend upon seeds as a means of reproduction.

The common adder's-tongue and the white form, E. albidum, need no comment here. The other two eastern forms, E. mesachoreum and E. propullans, are seldom mentioned in plant lists and are little known even in their natural range. If you think the latter is an overstatement, try to get stock of E. mesachoreum from a commercial grower in Missouri, Kansas, Nebraska or Iowa, to which states its range is restricted, according to the floras. Its leaves are narrow, lance-oblong, not mottled, and the flowers are bluish lavender. It is the one eastern species that bears few or no basal offsets. The other, which the floras say is found only in Minnesota and adjacent parts of Canada, has bright rose flowers, yellowish at the base.

Two western species, E. Hartwegii

and E. tuolumnense, reproduce in the usual eastern manner by producing offsets. The first is the earliest of the westerners to bloom and produces its orange-centered creamy flowers freely. Contrary to nursery descriptions, its flowers, as I have had it, are not solitary, but usually borne in a sessile umbel. The other, E. tuolumnense, is a newly discovered form with large unmottled leaves and golden flowers, less floriferous than most of the westerners.

E. californicum should be a favorite in eastern gardens, for it is longer-lived than most of its kind and is a generous producer of large, cream-colored flowers on 6 to 8-inch stems. Its variety bicolor has decidedly fragrant blooms, the inside of the flower being a bright yellow and the outside pure white. E. citrinum is a taller, more erect plant, with 10-inch stems, carrying many flowers that are almost white, the lower part being citron and the center orange. It, too, is dependable under eastern conditions. The glacier lily, E. grandiflorum, is a beauty and, like many beauties, is not to be relied upon. Its needs seem to be perfect drainage and constant moisture. The plant, at its best, is robust, growing up to twelve inches high, with bright yellow flowers and unmottled leaves. Its variety minus is simply a small edition, and variety Nuttallianum differs little from the type except that its anthers are reddish. Both seem as difficult as the parent. From the gardener's point of view the best of the grandiflorum group is variety robustum, which grows near sea level as well as in its high home near the eternal snow of alpine peaks. This accounts, I suppose, for the ease of its culture in lowland gardens. While on the "miffs" we may just as well dispose of E. montanum and E. purpurascens. The first, with pure white flowers on stems as high as eighteen inches, is good enough to work over. And care it does require, including constant moisture as in the wet moraine, and even then it has not been permanent here in north Michigan. E. purpurascens varies much in height, from a few inches to an equal of the loftiest. Its flowers are rather small, pale yellow, with orange centers, perhaps not justifying the care it takes to keep it going if dry weather overtakes it during the vegetative state.

The best of all the westerners, according to my experience, is E. revolutum in its various forms, no less than a half-dozen of them being available. The type has from two to four leaves, mottled white or brown on a green base and white to lavender white flowers. Of its forms the following are excellent garden material: Johnsonii, rose-pink flowers; Pink Beauty, lavender pink; albiflorum (variety Watsonii of some classifications), pure white with a band of maroon, a beautiful plant that has proved inconstant here; præcox, cream-colored, banded maroon; Rose Beauty, deep rose. Generally speaking, plants of this group are permanent in the east, and considering the beauty of their mottled leaves and showy revolute flowers, gardeners will probably find them of most interest.

All erythroniums may be grown from seeds planted in an outdoor frame in autumn, usually blooming the third year. At the present time collected stock is a little too cheap to allow much profit for a grower. In consequence, it is perhaps a better plan to buy blooming-size stock for resale. And it will sell, particularly if one has blooming plants in his show garden so customers can see their beauty.

LIVE OAK SOCIETY.

On both sides of the Old Spanish trail (U. S. 90) in Louisiana between Lafayette and New Orleans, a distance of 170 miles, there are 5,230 live oak trees in sight of the roadway, according to a survey made by Edwin L. Stephens, president of the Southwestern Louisiana Institute, Lafayette.

Many of these beautiful trees, which have long beards of Spanish moss, are charter members of the Live Oak Society, which was formed by Dr. Stephens and which includes in its membership only live oaks 100 or more years old.

Under the constitution and by-laws of this unique society, a representative, either the owner of the tree or some other interested person, is designated as attorney for each member. The annual dues are twenty-five acorns from each tree member, payable on or about New Year's day. The "dues" are planted in the live oak nursery of the Southwestern Louisiana Institute farm. Small live oaks are shipped out upon application and upon payment of the costs of handling and transportation.

The original president of the society was the Locke Breaux oak, at Hahnville, La., with a circumference of thirty-five feet, four feet above the ground. It is located just across the Mississippi from the Vonnet Carre spillway, New Orleans' flood guardian. It is seventy-five feet high and has a spread of 166 feet.

But dissension has crept into the ranks of the society because the Seven Sisters, an oak cluster at Lewisburg, La., has claimed the distinction of being the largest tree and that it is therefore entitled to the office of the presidency. This tree is considered the most imposing live oak spectacle in Louisiana. It has a circumference of thirty-six feet, one foot greater than the Locke Breaux, but it evidently is a cluster of six or seven trees all in one.

There is no dispute, however, concerning the next ranking charter members, which are: Arnaud Robert oak, located six miles above Breaux bridge in St. Martin parish, thirty-three feet five inches in circumference; Grandpere, Marrero, La., twenty-nine feet four inches; George Washington oak, in Audubon park, New Orleans, twenty-eight feet six inches; Martha Washington oak, in Audubon park, New Orleans, twenty-seven feet six inches.

Scores of other trees are members in the society, and each year new ones are being added through new discoveries and through age attainment. No tree less than seventeen feet in circumference is eligible, because it is believed that live oaks do not reach that circumference in less than 100 years. Last year, the avenue of live oaks known as Oak Alley, situated on the Mississippi river in St. James parish, were made members. This grove has twenty-eight trees, all large, perfect and healthy They are about sixty feet apart and the two rows are eighty-five feet apart. They were planted in 1836 and are known as the most beautiful grove of live oaks in America, a distinction which is bitterly challenged by the Versailles oaks, located at Chalmette, where the battle of New Orleans was fought as part of the War of 1812. The seventy-nine trees in this grove were planted by Pierre Denis de la Ronde, former owner of the Versailles plantation, in 1783.

Dr. Stephens formed the Live Oak Society because, as he puts it, "The

live oak is the noblest of all our trees, the most to be admired for its beauty, most to be praised for its strength, most to be respected for its majesty, dignity and grandeur, most to be cherished and venerated for its age and character, and most to be loved with gratitude for its beneficence of shade for all the generations of man dwelling within its vicinity."

SPRAY FOR CANKERWORM.

Cankerworms, commonly known as inch or measuring worms, devour the foliage of elm, apple, oak and many other fruit and shade trees in late May. When they are abundant, they may strip the trees of leaves. Defoliated trees leaf out again, but they are weakened by the effort, make less growth and sometimes take several years to recover. This leaves them in a susceptible condition, easily injured by diseases and other insect pests.

Trees should be sprayed with lead arsenate while the cankerworms are small, usually about June 1. One pint of forty per cent nicotine solution added to 100 gallons of spray kills the worms by contact, in case there is little foliage for the lead arsenate to cover.

CONIFER TIP BLIGHT.

The tip blight, or die-back, of various species of 2, 3 and 5-needled pines has been repeatedly observed, particularly on Pinus nigra austriaca, where it has caused serious damage in some instances, according to the report of the New Jersey agricultural experiment station in the April issue of Nursery Disease Notes. The disease has been noted to be most severe on older trees, but it is not confined to old specimens or those weakened by other causes. One apparently vigorous tree showed twenty to twenty-five per cent of the tips of the lower branches infected. The disease has been noted on young Pinus montana Mughus. Less frequent cases of this disease have been observed on Pinus resinosa and Pinus Strobus.

The organism attacks as if it were a weak parasite, often following insect or other injuries. The fungus concerned is of wide distribution in this country and attacks a variety of pine species. A similar, if not identical, fungus is also reported on berries of juniperus, twigs of thuja, dead twigs of Larix americana and dead cones of Picea excelsa.

The cause of this disease is a fungus which is called Sphæropsis ellisi. It seems probable that Sphæropsis ellisi is the same organism as Diplodia pinea. Specimens of Pinus sylvestris, Pinus montana Mughus, Picea excelsa, Picea pungens and Pseudotsuga taxifolia have been inoculated in the greenhouse with Sphæropsis ellisi isolated from needles of Pinus nigra austriaca. All trees used were in an apparently healthy and vigorous condition, although it must be stated that potted specimens are not comparable to similar specimens not potted. Inoculations have been negative on Picea pungens. Infections have followed inoculations on Pinus montana Mughus, Pinus sylvestris, Picea excelsa and Pseudotsuga taxifolia.

Infection that takes place early in the growth of the new shoot causes the most serious phase of this disease. Invasion of tissue is rapid at this time and the fungus quickly kills the whole growing shoot. Infections at later periods of growth apparently cause certain amounts of dying back of needles, but do not kill the entire shoot. The source of spores for this early infection may be from the old infected twigs on the tree or from fallen infected needles. Under trees showing this disease the fungus can be found sporulating abundantly on fallen needles.

Early applications of a protective fungicide (Bordeaux 4-4-50 plus a casein spreader) after pruning diseased twigs and cleaning up the needles below the tree have effected practical control. In certain cases this treatment has been accompanied by fertilization. Since there is some question as to the virulence of this fungus, fertilization should be advised.

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Texas Rose Regulation

Extension to Include All Nursery Stock Urged by W. C. Griffing, Beaumont Tex.

I read with interest the article in the American Nurseryman for May 15 regarding the appointment of a rosarian in Texas and the adoption of regulations to maintain a high quality of roses for this state. I am glad that the department of agriculture has come to realize the value of the rose industry in Texas. It is up to the growers, with the coöperation of the department of agriculture, to maintain the quality of roses which are marketed from east Texas. This problem may call for some strict rules and regulations of grading to control the quality.

After the machinery and equipment are set up by the department of agriculture to govern the classification and quality of roses, I hope the department will realize the magnitude and importance of other nursery crops produced in Texas and marketed in many states. We have other types of flowering shrubs, fruit trees, ornamental shade trees and landscape material, whose total value amounts to a large figure, sold and distributed from season to season under no regulations except "free of insects and diseases" and with no regard for the origination, trueness of variety or quality of the material marketed. Texas has received many severe reminders concerning the quality of roses; in like manner we have received reminders regarding ornamental shrubs and fruit trees. Those nurserymen who practice quality production are given no consideration by those who care little for the final disposition of their product.

Certification Bill Proposed.

While I was chairman of the legislative committee during the last session of the Texas legislature, a bill was introduced and passed providing for voluntary certification of nursery crops. It is my belief that this bill has many advantages and should eventually instill a desire in the nursery growers to produce and market a better quality and grade of stock for general distribution to the public. While entirely voluntary, it does no harm to those who care little what quality of stock, parentage, etc., is offered.

Perhaps the best example within the state is the certification of citrus trees as practiced in the Rio Grande valley. This has come about through costly experience and disastrous investments by people who were not informed. After years of growing a citrus orchard, many learned that their trees were of inferior quality and the fruit was worthless. Today we find the orchards planted with trees of selected varieties, and the crops of fruit are uniformly valuable.

I hope that the efforts made by the rose growers of east Texas will be but the stepping-stone to a bigger and wider territory to be covered by the department of agriculture in creating and maintaining a better grade of nursery stock for sale and distribution within the state. No organization will go farther toward helping this than the Texas Association of Nurserymen, which is organized to benefit the nursery trade in general.

W. C. Griffing.

SHELTERBELT TREES LIVE.

An average of 550 trees per acre in 6,743 acres of farm windbreaks planted in the prairie states in 1935 survived the 1936 drought, the United States forest service has reported.

The average number of trees planted per acre along the 1,277 miles of shelter strips was 740, although the number varied from 540 to 1,000. Pocket gophers and jack rabbits caused more damage in some sections than the drought.

Trees which made the best growth were green ash, cottonwood, Chinese elm, red cedar and ponderosa pine. Trees which were eight inches high when planted in the spring of 1935 have grown to fifteen and sixteen inches high in many regions.

In a survey among farmers who planted trees on their own initiative, 340 farmers in twenty-six Nebraska counties reported their trees were worth an average of $1,046.

Annual savings aggregating $326.06 were claimed by the farmers due to production of fuel wood, posts and poles, increased garden production, wind protection to buildings and equipment, increased crop production and protection to live stock.

NEW GRAFTING COMPOUND.

Recent tests made with a combination of aluminum flake powder and latex, the natural sap of the rubber tree, offer hope that an almost perfect grafting compound has been found, says a writer in Country Gentleman.

Two ounces of the aluminum powder to one quart of latex makes a satisfactory mixture. The flake aluminum renders the material opaque, excludes and reflects light, and reduces internal temperatures where there is exposure to the sun.

The mixture is clean and easy to apply with a small brush or swab. It is about the consistency of cream and may be diluted with water if too thick, but it should be kept sealed when not in use. Within a few minutes after application the latex solidifies into a coating of pure rubber. If rubber bands or strips are used for tying, the

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covering is so elastic that no subsequent attention is necessary. There is no cracking of the coating, no strangulation due to growth.

The material is economical to use, two or three drops being sufficient to seal an ordinary bud. By weight the cost should not exceed that of good house paint.

It should be emphasized that latex is a natural emulsion of rubber and is not to be confused with liquid rubber cements.

STUDY DELAYED STARTING OF FRUIT TREES.

Failure of trees newly set in the orchard to get off to an early and vigorous start in the spring has presented a problem to nurserymen and fruit growers which is still puzzling, but upon which some progress is being reported by the New York state experiment station. Frequently the nurseryman is blamed for slow starting and poor growth in the spring, yet records indicate that often the fruit grower himself is at fault. If the bundles are not promptly opened upon receipt, if the trees are allowed to dry out by exposure of the roots to sun and wind, or if the plants are allowed to heat in the package, the effect upon the young tree may be serious.

Among various factors affecting an early start in the orchard which are being considered in tests at the experiment station has been that of nutrition of the young trees. It was suggested that fertilizing the trees in the nursery row prior to digging in the fall might result in the trees' storing up an extra supply of nutrients which would give them a boost in the spring when they were set in the orchard. Yet, trees so treated, either by applying fertilizers to the soil or by injecting fertilizers into the dug trees, failed to result in any superior growth.

The most promising suggestions have come from tests in which water movement in the plant is promptly established after planting. This means that careful attention should be paid to keeping the trees from drying out and getting them tightly packed into the soil. If the soil is coarse and lumpy and the plant set loosely, air pockets will be found around the roots, preventing intimate contact with the soil and preventing water intake through the roots. Such a plant might as well be suspended in air.

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TEXAS ASSOCIATION NEWS.

Growing Nursery Crop Tax Eliminated.

Texas nurserymen are rejoicing that the bill to eliminate the tax on growing nursery crops was passed by the state senate. The bill must be signed by the governor before it goes into effect, but as he is favorable, the feeling is that it will be signed and become effective without further delay. The legislative committee of the Texas Association of Nurserymen has spent several years trying to put this legislation through.

Heretofore this annual tax on growing nursery crops had been assessed against only a few of the nurserymen over the state, many of the growers escaping assessment for one reason or another, but within the last year or two several growers were taxed who had not been taxed previously and the tax seemed likely to reach every grower in the state. Nurserymen have worked diligently to repeal this law and place their crops back in the same classification as other growing farm crops, not subject to taxation.

This is one of the big accomplishments of the Texas Association of Nurserymen this year, although there are others which could be mentioned. Texas nurserymen are coöperating with the American Association of Nurserymen to have nurserymen and their crops classified as farmers and farm crops to avoid further unjust taxation. To accomplish this, full coöperation is required of all Texas nurserymen through their state organization. If you are a nurseryman and not a member of your state organization, you are not doing your part. The Texas Association of Nurserymen has constantly increased its membership throughout the year.

Delegates To A. A. N. Convention.

While the date of the American Association of Nurserymen convention is yet several weeks away, plans are being formulated to send official delegates from Texas to the meeting at Chicago. In addition to the delegates, many other nurserymen are planning to attend the convention. The problems which have arisen within the past year are increasing the interest shown in this national meeting by Texas nurserymen. Perhaps another reason why nurserymen plan to attend the meeting this year is that business conditions have improved and nurserymen in general feel financially more able to make the trip and visit with fellow nurserymen during the summer vacation season. From the general feeling expressed among the Texas nurserymen, the A. A. N. can look forward to a large Texas delegation. Wilma Gunter.

BELLINGRATH GARDENS.

Members of the Beaumont Florists' and Nurserymen's Club were privileged to see colored films of the azalea and camellia plantings of Bellingrath gardens, May 18, at a meeting with other clubs at Beaumont, Tex. These films were made by Walter D. Bellingrath, an executive of the Coca Cola Co., and shown by the courtesy of Veazy Rainwater, also an executive of the Coca Cola Co.

The Bellingrath gardens, located near Mobile, Ala., along the Isle aux Oies (Fowl) river, are visited by thousands of persons annually, but the greatest number of visitors come during January and February, when the camellias and azaleas are at the height of their beauty. The films, made during January and February, 1937, of beautiful, rare specimens of Camellia japonica in varying colors and varieties and of masses of azaleas in brilliant colors, together with natural backgrounds of southern live oaks, spiræa and green foliage, illustrated the beauty of the gardens. Mr. Rainwater described the views shown by the pictures and told of the development of this estate, now consisting of more than 300 acres.

Wilma Gunter.

WATKINS BUYS TYLER NURSERY.

Announcement has come of the purchase of full interest in the Dixie Rose Nursery, Tyler, Tex., by A. F. Watkins from his former partners, R. W. Fair and W. F. Henson. Associated with Mr. Watkins in the firm, which will continue under the same name, is his son, John C. Watkins, 21. New offices have been opened in the Blackstone Hotel building, Tyler. Properties of the firm include 118 acres on nine farms in the vicinity of Tyler, on which last year the output was 846,000 plants.

Simultaneously with the report of Mr. Watkins' purchase of the entire nursery, comes word that the celebrated Texas Centennial rose, originated at the nursery, has been awarded first honors in competition with 143 other new varieties in testing gardens in New Jersey. The honor was given after 2-year tests.

Mr. Watkins first became interested in rose culture when he was a boy of 12. He subsequently operated nurseries at Jacksonville and Mount Selman. After the World war, during which he undertook other work, he served as manager for a number of nurseries at various periods. He also served awhile as nursery inspector with the state department in the El Paso district. In 1924 he joined R. W. Fair and W. F. Henson, of the Texas Pecan Nursery, Tyler, in organizing the Dixie Rose Nursery. Since its organization he has been in complete charge of the management of every phase of the business including production, publicity and marketing. His success as a propagator of new varieties is well known.

He served in 1928 as one of five members of a national committee named by the American Association of Rose Growers to perfect a standardized grading system of roses. In 1934 he was appointed trustee of the American Rose Society and was reëlected in 1935 for a 3-year term.

Young John C. Watkins served as assistant to Dr. J. J. Taubenhaus, plant pathologist at the Texas experiment station. He specialized in the study of rose diseases, including work in field and laboratory. He attended Texas A. & M. College, College Station.

OKLAHOMA SUMMER MEETING.

The summer meeting of the Oklahoma State Nurserymen's Association will be held Wednesday, June 30, at Norman, Okla., where the association members will be the guests of the University of Oklahoma.

Most of the day will be devoted to recreation, but time will be taken for discussion of problems, such as laws, diseases and quarantines, that affect nurserymen and their business. Time will be reserved for a discussion of the rose situation in Texas if a representative from that state can be secured. An old-fashioned barbecue will be served. J. A. Maddox, Sec'y.

ROGER REYNOLDS, proprietor of the Roger Reynolds Nursery, Menlo Park, Cal., is growing on contract a large number of trees, plants and shrubbery for the San Francisco fair in 1939.

A NEW greenhouse, 28x50 feet, has been completed at the Riverside Nursery, near Milaca, Minn. It is built so that another section can be added to give a complete floor space of 28x106 feet.

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Trial, 3 large 2-year, $1.00, prepaid. 12 large 2-year, $2.50; 12 small, $1.50. All prepaid.

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COLUMBUS LANDSCAPERS MEET.

The May meeting of the Columbus Landscape Association was held at the Charminel hotel, Columbus, O., with a good attendance, considering the fact that this is the rush season in the nursery and the landscape industries. After dinner, which was served in the dining room, the group moved to a private room, where the business session was held. In the absence of President Esper, Vice-president L. C. Chadwick presided.

Walter Tucker, chairman of the speakers' bureau committee, spoke of progress made in respect to offering the services of various members of the association as speakers before any civic group requesting them, the talks to be on subjects relating to landscaping and gardening. He stated that he was able to secure the mailing addresses of a large number of organizations that will undoubtedly avail themselves of the opportunity and that this list will be turned over to the president.

The name of Dirk Offenberg was proposed as a prospective member. It was decided to invite both him and Virgil Rains, another prospective member, to the next meeting.

The possibility of conducting a tour for members of the association and their wives was discussed at some length. William Speed made a motion, which was carried, that such a trip be arranged for and that Howard Warwick and Walter Tucker be in charge of arrangements.

Bert Kleinmeyer reported for the coöperative buying committee and showed those present the considerable saving effected by the collective buying of peat moss, as was done this year.

Prof. L. C. Chadwick showed photographs of landscape features of the various leading spring flower shows as taken from The Florists' Review, other trade publications and Life magazine.

Prof. Alex Laurie described the exceptionally fine spring flower exhibition which was held at the Schenley park conservatory at Pittsburgh, Pa., this year. He also spoke briefly of the national flower show at Milwaukee and the international exhibition at New York. He described the vast experimental work being done at the university for the benefit of landscape gardeners, nurserymen and florists—this despite the fact that the funds for such work are inadequate.

Harry O'Brien then showed an interesting group of slides, many of which were colored, showing gardens and landscape projects which he has viewed in his many recent trips to various sections of this country.

Upon the suggestion of Professor Laurie that the association go on record as being opposed to the present poor supervision of parks in Columbus, the matter was referred to the executive committee for action in the near future. The next meeting was set for June 8 at the same place.

A NEW store has been opened at a corner of Second and Main streets, Kewanee, Ill., by the LaFayette Home Nursery. Mr. Breedon is in charge.

THE Towson Kiwanis Club recently heard a lecture on trees and shrubs, illustrated with natural-colored lantern slides, by Paul S. Hoffman, of Towson Nurseries, Inc., Towson, Md.

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Evergreens — Shrubs
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PACIFIC COAST PROGRAM.

At Portland, June 9 to 11.

The joint convention of the Pacific Coast Association of Nurserymen and the Oregon Association of Nurserymen will be held at the Multnomah hotel, Portland, Ore., June 9 to 11. A registration fee of $4 will be charged, which will entitle the visitor to attend all the sessions of the joint convention, the annual banquet, the luncheon at Washington park, the combined nursery show and rose show and all the rose festival entertainments.

Wednesday morning, June 9, Joseph K. Carson, mayor of Portland, will welcome the members of the associations and their guests. After B. A. Mitchell, president of the Pacific Coast association, responds, the officers and committees will make their reports. This session will be followed by the annual get-together luncheon. This luncheon is for men only.

Wednesday afternoon, Clarence O. Siebenthaler, president of the American Association of Nurserymen, will present "A National Outlook on the Nursery Industry." Then Arthur M. Geary, Portland attorney, will tell "How Present-day Laws Affect the Nursery Business, with Special Reference to the Robinson-Patman Bill and the Social Security Act." "A Selection of the Best Roses on Today's Market" will be discussed by Fred Edmunds, curator of the Portland rose test gardens. At 4 p. m., the Oregon association will hold a business meeting.

In the evening all visitors will gather at the Fourth street entrance of the hotel to be transported to the stadium for the band concert and the coronation of the rose festival queen. The Portland band, directed by Ashley Cook, will feature the "City of Roses" song, by Goldia Basler, in the assembling concert. The coronation of the queen will be a marvelous ceremonial attended by maids of honor, royal rosarians and mounted officers of the national guard and concluded by the Christensen ballet. The Tournament of Roses band, of Pasadena junior college, directed by Audre L. Strong, will precede the exhibition of thrills by the Victor McLaglen motorcycle corps.

Second Day.

Thursday morning, Earl Houseweart, president of the Oregon association, will call the meeting to order to hear S. T. White, director of the Oregon department of agriculture, Salem, reveal "Oregon's Position in the Horticultural Industry;" Guy Graham, commissioner of agriculture, Boise, Idaho, discuss "Idaho and Horticulture," and Prof. R. L. Adams, of the University of California, Berkeley, speak on "Cost Finding as Applied to the Nursery Business." At noon E. Dering will preside at an informal luncheon.

Thursday afternoon, B. A. Mitchell will preside at the session to be addressed by Mark Astrup, of the national park service, on "Review of the C. C. C. Work in State and National Parks;" Harry A. Marks, past president of California Association of Nurserymen, on "Growth and Progress of the Southern California Horticultural Industries," and Charles Walker, of the Northwestern School of Commerce, Portland, on "Successful Marketing and Advertising of Nursery Stock." After adjournment, transportation will be provided to the rose show of the Portland rose society at the Portland armory.

Thursday evening the banquet will be held in the grand ballroom of the Multnomah hotel.

Friday morning, B. A. Mitchell will preside at a business session to hear reports of convention committees, to elect officers, to select the next convention city and to dispose of unfinished business. After adjournment the visitors will view the grand floral parade, after which they will go to the rose test gardens, at Washington park, to inspect roses and to eat luncheon.

It is understood that the ladies are planning a personally conducted tour of Bonneville dam as a feature of their entertainment.

Convention Committees.

The following committees are in charge of the convention.

Executive—B. A. Mitchell, chairman; Earl Houseweart, J. A. French, Avery Steinmetz, Paul Doty, Walter Dimm.

Reception and registration—Ralph Johnston, chairman; Clayton Lewis.

Rose show and nursery exhibits—Fred Borsch, chairman; W. J. Enschede, J. G. Bacher, A. B. Patterson.

Decorations—Robert Isler, chairman; Melvin Surface.

Entertainment—E. Dering, chairman; John Wieman, Roy Woodruff.

Washington park luncheon—J. Frank Schmidt, chairman; Ray A. Simpson, Elbert Stone.

Ladies' entertainment—Mrs. B. A. Mitchell, chairman; Mrs. Avery Steinmetz, Mrs. Earl Houseweart, Mrs. John Holmason, Mrs. W. J. Enschede, Mrs. Paul Doty, Mrs. Wayne McGill, Mrs. Dee Lewis, Mrs. Frank Schmidt.

THE twenty-seventh annual convention of the California Association of Nurserymen will be held at Oakland September 22 to 24, at the Hotel Oakland. James R. Crombie is president and Henry W. Kruckeberg is secretary. The Central California Nurserymen's Association will be host of the convention. This organization is coöperating in the Golden Gate bridge fiesta at San Francisco, May 27 to June 2.

NEW members taken in at the meeting of the Central California Nurserymen's Association May 13, at Niles, included: I. McKenzie, of the Burch Bros. Nursery, Napa, and L. A. Weaver, of the Emporium nursery department, San Francisco, and John Edwards, of the Jackson & Perkins Co., San Jose. Roy MacDonald, of the Garden Quarterly, San Francisco, was elected an honorary member. Committees for the coming convention of the state association will be announced at the next meeting, in June. The northern group will be hosts.

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Other plants of unusual character and with the charm of old-time gardens.
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HYDRANGEA P. G.
CORNUS FLORIDA
Good Dormant Condition
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Hickory, N. C.

AGRICULTURAL ENGINEERS.

The American Society of Agricultural Engineers will hold its thirty-first annual meeting at the University of Illinois, Urbana, June 21 to 24. Among the diverse subjects chosen for addresses, a few are of interest to nurserymen, such as those on irrigation and on electrical devices in rural localities. W. C. Reed, of the Vincennes Nurseries, Vincennes, Ind., will speak June 24 on "Use of Electricity in Fruit Farm Operation."

NEW CRANE IN ACTION.

Eugene A. de St. Aubin & Bro., Inc., Addison, Ill., recently had Otto Damgaard's new tree-moving crane working in its nursery. The continued wet weather made it difficult to use the usual methods to load several trees with balls averaging over six feet in diameter. The Gar Wood Industries unit picked up each tree without difficulty and brought it out to a transfer point where the crane was used to transfer the load to another truck for transportation, leaving the unit free to return for another tree. The operator told the nursery workers that he had picked up one tree with a ball over eleven feet in diameter and that the crane had handled the load without difficulty. Otto Damgaard is a landscape contractor at Des Plaines, Ill.

TOWSON NURSERIES, INC., Towson, Md., has mailed the spring planting number of its publication, "The Four Seasons." The eight pages contain five timely articles and six attractive illustrations, which should increase the reader's interest in the service and material offered by the nursery.

A THIEF stole about $75 worth of rhododendrons, camellias, rosebushes and orange trees from the Three Cities Nursery, San Mateo, Cal., April 24. As only the more expensive stock was taken, Ralph Gargiulo, proprietor, believes the thief had been to the nursery earlier in the day to see where the various plants were kept.

THE show gardens of De Monye Bros., on Johnstown road, Columbus, O., are attracting large crowds to see the thousands of tulips in full bloom, some varieties of which are said to be unobtainable elsewhere in this country. For the convenience of visitors who are unable to see the gardens during daylight, the display is fully illuminated at night.

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INCOME TAX DEDUCTION.

Employer contributions under state unemployment insurance laws approved by the social security board, required by the state to be paid into state unemployment funds and not generally recoverable at the option of the employer, are deductible in the federal income tax returns of the employer, according to a ruling of the commission of internal revenue of the United States Treasury Department dated May 14. Such contributions are held to be deductible as business expenses, except that if the state under whose law such contributions are levied classifies them as taxes, they shall be deductible as taxes and not as business expenses. Further, such contributions paid or accrued to the state fund are in general deductible in the employer's federal income tax return for the taxable year in which they are paid or accrued, depending upon the method of accounting employed in keeping the books of the taxpayer.

Employee contributions under state unemployment insurance laws approved by the social security board, required by the state to be paid into state unemployment funds and not generally recoverable at the option of the employee, are deductible in the federal income tax returns of the employee. Such contributions are held to be deductible as business expenses, except that if the state under whose law such contributions are levied classifies them as taxes, they shall be deductible as taxes and not as business expenses. Further, such contributions paid or accrued to the state fund are in general deductible in the employee's federal income tax return for the taxable year in which they are paid or accrued, depending upon the method of accounting employed in keeping the books of the taxpayer.

BULLETINS RECEIVED.

Bulletin 678 of the New York state agricultural experiment station, Geneva, is a 34-page report by J. H. Hamilton of recent investigations on the control of cedar-apple rust in the Hudson valley. Three species of rust fungi, capable of attacking not only the apple, but a wide range of related pomaceous plants, cause trouble. They are the apple rust fungus, which attacks both the foliage and the fruit of the apple; the hawthorn rust fungus, which attacks only the foliage and rarely causes much damage, and the quince rust fungus, which can, but infrequently does, cause serious commercial losses of the fruit. All three spread to the apple from the red cedar, the alternate host, yet each species has a preferred host from which its common name is derived. Control is effected by sprays, principally with the milder wettable sulphur materials, by complete eradication of cedars within one-half mile of the orchard or by planting rust-resistant varieties of apples, the most promising of which are Milton, McIntosh and Cortland.

Bulletin 371 of the New York state college of agriculture, Ithaca, entitled "Common Insects of the Flower Garden," by Grace H. Griswold, is an attempt to bring together some of the available information concerning insects that attack common garden flowers. Within the compass of sixty pages many of the more important insect pests are described and illustrated and, where possible, simple control measures are suggested. Although this bulletin is directed to home gardeners, much of the information given so concisely is of value to florists and nurserymen.

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RHODE ISLAND LANDSCAPE BIDS.

The Rhode Island state division of contracts opened bids recently for two landscaping projects along highways in Westerly, Narragansett and South Kingston, which are part of the 1936 federal-state program. The bids were held under advisement.

The following were received for landscaping 1.482 miles of Kingston road: New England Tree Expert Co., Pawtucket, $6,278.28; Warren Landscape Engineering Co., $6,525.99; Raymond A. Bergesson, $8,144.25; Louis A. Byrne Nurseries, Dennisport, Mass., $8,948.37, and Warwick Avenue Nursery, Cranston, R. I., $9,570.70.

For landscaping 1.424 miles of Watch Hill road bids were as follows: New England Tree Expert Co., $5,712.03; Raymond A. Bergesson, $5,782.35; Warren Landscape Engineering Co., $6,084.27; John Adams & Son, $7,304.59; Warwick Avenue Nursery, $8,345.73, and Louis A. Byrne Nurseries, $9,168.10.

H. J. DEEMS JOINS SHERMAN.

The Sherman Nursery Co. announces that Harley J. Deems will assume the responsibility of vice-president and general manager of its thousand-acre nursery July 1, at which time he and his family will move to Charles City, Ia., from Shenandoah, where for the past sixteen years he has been with the Shenandoah Nurseries.

Mr. Deems for many years past has been representing the Shenandoah Nurseries as wholesale traveling representative. He will attend the A. A. N. convention at Chicago in July to meet his old friends and acquaintances. C. C. Smith, secretary of the Sherman Nursery Co., will also be in attendance.

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ROSE SOCIETY AT CLEVELAND.

The spring convention of the American Rose Society will be held at Cleveland, O., Tuesday and Wednesday, June 15 and 16, 1937. Headquarters will be at the Hotel Cleveland.

The 2-day program includes visiting the Cleveland rose show, various gardens in and around Cleveland and the garden of M. H. Horvath, hybridizer and trustee of the American Rose Society. A visit to the rose nurseries in that section is also planned.

SPECIAL PARK DISPLAYS.

Will Tell Constitution's Age.

The slogan, "Say It with Flowers," will have a unique and important significance this year.

Representative Sol Bloom, director general of the United States constitution sesquicentennial commission, recently addressed a letter to the superintendents of city parks in the United States suggesting that during this constitution year the figures "1787-1937" be planted as part of the parks' floral decorations. These figures represent the year in which the constitution was signed 150 years ago, and this year when the celebration of the sesquicentennial of the formation of the constitution begins September 17.

The suggestions of Director General Bloom met with a hearty and enthusiastic response. Already nearly fifty cities have agreed to coöperate in this patriotic display of historic years, including twenty-five states.

Minneapolis Plan Commended.

For instance, a design submitted by Louis Boeglin, Minneapolis, Minn., proposed an elaborate floral bed in which the word "Constitution" was added to the figures, with stars at each end of the bed. This design will be placed in front of the rose garden at Lyndale park, near the shore of Lake Harriet, where it will be viewed by the multitudes who visit the garden or drive by. The sketch of Mr. Boeglin's design has been sent to every city where these flower figures are to be planted, together with a list showing the flowers to be used.

In St. Louis, Mo., the flower figures will be placed in Carondelet park; in Oakland, Cal., they will be planted at the Grand avenue entrance to Lakeside park, and at Lynchburg, Va., they will appear in Miller park. In Houston, Tex., arrangements have been made to display the historic dates at a prominent point—one date on each side of the Houston statue at the entrance to Hermann park. In Seattle, Wash., the figures will be placed in Volunteer park, and in Tacoma, Wash., they will be planted in connection with the flower representation of the American flag in Point Defiance park. In Boston, Mass., the figures will be either in Copley square, in front of the Public Library, or on the main walk in the public garden, adjacent to the Washington monument.

Cordial coöperation with the suggestion has been manifested by Arno B. Cammerer, director of the national park service, and C. Marshall Finnan, superintendent, national capital parks. These two officials have supplied designs which, while less elaborate than the Minneapolis plan, are both appropriate and will attract attention.

In Washington, D. C., the flower figures will appear in a prominent position in Rock Creek park and also East Potomac park.

It is confidently expected that the appearance of these figures commemorating historic years will attract widespread attention to the celebration of the one hundred fiftieth anniversary of the formation of the constitution.

As soon as the plants are sufficiently developed, photographs will be taken, not only for publication in local newspapers, but to become part of the permanent records of the commission.

HEDGES FOR RESTAURANTS.

Nearly a thousand feet of hedges and window boxes will be used this summer by the Childs Co. in its restaurants in New York city.

Two hundred and thirty feet of pyramidal arbor-vitæ and Thuja elegantissima will be used in hedges inclosing sidewalk terraces at three Broadway restaurants. Japanese yew is used to mark the entrances to the majority of the restaurants.

More than 700 feet of window boxes will decorate the thirty-seven garden fronts. Here the golden green of Thuja aurea nana will be used in contrast with boxwood, and all the boxes will be edged with Vinca variegata.

All plants used are new, as it was found that the cost of digging up the old ones and storing them through the winter would be as much as buying new plants.

L. A. WHITMAN is establishing a nursery on highway 34 at Agency, Ia., on a 28-acre tract purchased several months ago. Mr. Whitman is a graduate of Iowa State College, Ames, specializing in nursery management.

HORMODIN-A

20 BTI units (sufficient for	300 to 1000 cuttings)	$1.00, postpaid
60 BTI units (sufficient for	450 to 1800 cuttings)	2.00, postpaid
240 BTI units (sufficient for	1800 to 7200 cuttings)	7.00, postpaid
480 BTI units (sufficient for	3600 to 14,400 cuttings)	13.00, postpaid
960 BTI units (sufficient for	7200 to 28,800 cuttings)	24.00, postpaid

New Catalogue of NURSERY TOOLS and SUPPLIES.

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AMERICAN FLORIST SUPPLY CO.

1335 W. Randolph St. CHICAGO

Hormodin-A

is sold by

THE KERVAN CO.

119-121 West 28th Street

NEW YORK

Except for this fact and to tell the costs, there is no need to add to the words so well written by

Merck & Co., Inc.

20 BTI units (sufficient for 300 to 1000 cuttings) .....$1.00 postpaid

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Hormodin "A" makes Difficult Cuttings Easy to Root

Developed by Boyce Thompson Institute for Plant Research, Inc.—Stimulates rapid root growth on cuttings.

The discovery that brought Dr. P. W. Zimmerman and Dr. A. E. Hitchcock the $1000 prize of the American Association for the Advancement of Science! The product that has been hailed as producing "new marvels in plant propagation"! Today this amazing root-inducing chemical, Hormodin "A", is the practical means of propagating finer plants at far less cost.

When treated with Hormodin, many species heretofore considered impossible to propagate from cuttings may be rooted successfully. Broad and narrow leaf evergreens; apple and other commercial fruit trees; blueberries, dahlias, daphne, ornamental trees such as elm, maple, linden and magnolia; gardenias, grapes, common shrubs and herbaceous annuals and perennials are only a few of the many varieties of plant cuttings which may be rooted readily with Hormodin.

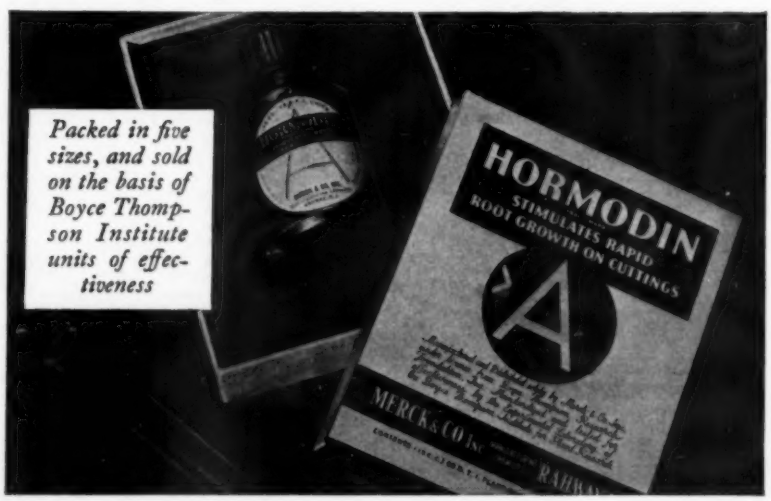
The rapid root growth on leafy cuttings stimulated by Hormodin assures quicker and better rooting in higher percentages than ever before possible. Because Hormodin induces roots to grow directly from the plant tissue, cuttings may now be taken without relation to buds or nodes.

Hormodin hastens turnover in the propagating bench and increases the percentage of cuttings which strike root. Also, because of their profuse root system, some varieties of cuttings treated with Hormodin may often be transplanted directly from the bench to field conditions.

Hormodin treatment is simple. No special equipment is needed. Hormodin comes in liquid form and is applied as a dilute, water solution. The cost is only a fraction of a cent per cutting.

PHOTOGRAPHIC PROOF OF HORMODIN'S EFFECTIVENESS

The photographs on this page are vivid proof of the root-inducing power of Hormodin. In each case, both the treated and the untreated cuttings were in the same propagating bench, under the same conditions, exactly the same length of time. Hormodin alone is responsible for the more profuse root growth in each picture.



Packed in five sizes, and sold on the basis of Boyce Thompson Institute units of effectiveness

DOUBLE CONTROL STANDARDIZES ROOT-INDUCING POTENCY

The Merck Control Laboratories chemically standardize Hormodin. In addition, every batch is tested and standardized physiologically by the Boyce Thompson Institute. Thus, every package contains a definite amount of root-inducing potency. Complete directions and calibrated measuring glass make it easy to prepare correct solution for each variety of cutting.

WRITE FOR FREE BOOKLET

Every nurseryman and grower should have this free illustrated book telling how Hormodin saves money and labor and hastens the development of slower rooting species to a fraction of normal time. Write for it today.

MERCK & CO. Inc. *Manufacturing Chemists* RAHWAY, N. J.

GARDEN OF TOMORROW.

Shown at New York Home Show.

A garden of flexible form, in which the plants can be rearranged and replaced at will, and a stand-up garden, that can be cultivated without kneeling or bending, were two of the features in the unusual landscaping of the House of Tomorrow at the recent home show at Madison Square Garden, New York.

The first was a garden that was not dug into the ground at all, but was set upon a paved terrace in specially designed units. The second was a long serpentine border, planted for year-round beauty with flowering shrubs, trees, evergreens and hardy perennials and with the soil raised to somewhat more than table height above the level of the path that followed its curving wall. The wall itself was designed as a subtle echo of the ultra-modern feeling in the house design.

The garden as a whole was described by the architects as being in effect a continuation of the house. The high walls that extended from both ends of the building inclosed the entire garden area as though that space were an outdoor living room. The merging of the house interior with the garden outdoors was emphasized by the fact that the garden facade of the house was largely composed of windows and that the living room of the house protruded in a wide sweep onto the terrace.

The garden also contained a long reflecting pool that balanced the serpentine border on the opposite side of a bowling green, which occupied the center of the space, a shady garden in the courtyard and a smaller raised garden of flowering shrubs.

These novel features were originated by the Ladies' Home Journal and its architects, Harrison & Fouilhoux. The unusual planting scheme was designed by Ethelbert E. Furlong, landscape architect. The plants for the garden were specially prepared and furnished by Bobbink & Atkins, Rutherford, N. J.

The flexible garden was planted with bright-flowering perennials, with roses and evergreens for accents. It was laid out in a modern pattern that matched the mood of the architecture, but its form could be readily changed to fit any desired design. The plants were all in rectangular containers specially made for this garden. These boxes were made of the same material as ordinary flower pots and were of two sizes—7x14 inches and fourteen inches square, deep enough to hold the proper amount of soil for the plants.

The size and shape of these new plant receptacles make it possible to set them close together, thus giving the effect of a solid bed. Their use not only makes it possible to have a garden of any size or shape, for a penthouse, back yard or country terrace, but to change the garden at will by replacing one or more containers as the seasons advance, thus keeping the garden in full flower at all times. In winter the garden can be planted in evergreens or can be removed altogether.

Raised Border of Trees.

The raised garden is an idea that will become popular, according to the sponsors, not only for the ease with which it can be cared for, but because of the immediate effect it gives by reason of its height. The background planting of the raised border was of flowering shrubs and trees. These are ordinarily planted when quite small, and if they were to be planted at ground level it would take several years at least for them to reach an effective height. Here, however, they at once assume tall and generous proportions because of their elevated positions, while the smaller shrubs and perennials, which form the foreground of the planting, grow close to the eye, as well as to the hand, of the gardener.

One thousand square feet of sod were required for the bowling green. Hundreds of shrubs, trees, evergreens and perennials, most of them brought into flower for the show's opening, were furnished by the nursery firm and installed by twenty trained plantsmen.

ROCK GARDEN SOCIETY SHOW.

The gold medal of the American Rock Garden Society was awarded to Zenon Schreiber, Bergenfield, N. J., who also won the gold medal of the Horticultural Society of New York, for his artistic and well executed rock garden of 200 square feet, at the exhibition of the American Rock Garden Society, held in the American Museum of Natural History, New York, May 14 to 16, with the Horticultural Society of New York cooperating.

The Chronicle cup went to the F. & F. Nurseries, Springfield, N. J., for the best rock garden in the 100 square foot class, while Dr. James P. Burlingham, Syracuse, N. Y., won the president's award of two volumes of "The English Rock Garden," by Reginald Farrer, for three specimens of dwarf evergreens other than conifers, all different. Mrs. Charles H. Stout's horticultural achievement gold medal was awarded to Kurt Baasch, Baldwin, L. I., for a collection of saxifrages. Of two special prizes, a pan of rare alpines offered by Mrs. C. I. DeBevoise was won by Mrs. G. Latta Clement, Asheville, N. C., for North American natives, while three plants of Aquilegia Jonesii, offered by Dr. C. R. Worth, Groton, N. Y., were won by Dr. James P. Burlingham for double white trillium.

Special exhibits included a collection of plants for educational purposes by the Stumpp & Walter Co., Farmingdale, L. I.; a wild azalea grown from seed gathered on Mount Fujiyama, Japan, by Mrs. Charles H. Stout, Short Hills, N. J.; exhibits of plants by Roland G. Gamwell, South Bellingham, Wash.; Fred Borsch, Maplewood, Ore., and Mrs. G. Latta Clement; an exhibit of miniature rock gardens and petrified wood by R. R. Ritchie, Saratoga Springs, N. Y.; an exhibit of meconopsis by Mrs. J. M. Hodson, Greenwich, Conn., and an exhibit of Aquilegia Jonesii and Eritrichium elongatum by Dr. C. R. Worth. Another extremely rare plant was Ramondia (Jankæa) Heldreichi by Dr. James P. Burlingham.

The judges were Mrs. Cecile Hulse Matschat, New York; Robert Senior, Cincinnati, O., and P. J. Van Melle, Poughkeepsie, N. Y., in the classes for rock gardens, and Clarence Hay, New York, and Newbury, N. H.; Mrs. Lucien B. Taylor, Dover, Mass., and Stuart Longmuir, Sterlington, N. Y., in the classes for collections of plants and individual plant specimens. This was the first rock garden exhibition held in New York and attracted considerable attention. The garden public is showing keen interest in this phase of gardening. The show committee, of which Kurt Baasch is chairman, deserves great credit for putting on such a splendid show, a fine piece of work for a society 3 years old on March 18 last.

An interesting feature was a showing of fine photographs of rock gardens and rock and alpine plant material. Those whose pictures were hung included Silvan Saunders and H. G. Healy, New York; Harold H. Costain, Scarsdale, N. Y.; Horace McFarland, Harrisburg, Pa.; Walter Beebe Wilder, Bronxville, N. Y.; Kurt Baasch; Claude Barr, Smithwick, S. D.; Mrs. C. Chanler, Huntington, L. I., and Clarence Elliott, Stevenage, England.

The following officers were elected at the annual meeting held at the American Museum of Natural History on the afternoon of May 14: President, Mrs. Clement S. Houghton, Chestnut Hill, Mass.; vice-president, Robert Lemmon, New Canaan, Conn.; secretary, Mrs. Dorothy E. Hansell, Summit, N. J., and treasurer, Robert Senior, Cincinnati, O. The directors elected were Mrs. Walter B. Wilder, Bronxville, N. Y.; Mrs. Willis M. Hall, Waterbury, Conn., and Mrs. George F. Wilson, Easton, Pa.

ASSISTANCE is being given in the Kiwanis Club civic yard-improvement project at Helena, Mont., by W. J. Mills, of the State Nursery & Seed Co.

ADAMS NURSERY, INC., Springfield, Mass., as part of its advertising program, uses "Suggestions about Lawns" printed on a sheet 6½x10¼ inches in size, folded twice to dimensions of 3½x6½ inches, as an inclosure when sending letters, statements, etc. The cultural directions are of value to many customers and make an excellent build-up for a short descriptive paragraph about the lawn grass seed mixtures that the nursery sells.

FOR SALE

Retail nursery business, old established firm near one of the largest cities of the Pacific northwest; sale to include location, name and complete list of clientele. Applicant must make known amount of down payment on original inquiry.

Address No. 57, c/o American Nurseryman, 508 S. Dearborn St., Chicago, Ill.

SALESMAN WANTED

Experienced man to call on wholesale nursery trade.

Lake's Shenandoah Nurseries
Shenandoah, Ia.

CLASSIFIED ADVERTISING

Hardy Chrysanthemum Pink Cushion.
Fine rooted cuttings, $2.00 per 100.
(Same as Amelia and Azaleamum.)
Wonderland Nurseries, Ellerson, Va.

My new Seed List has been posted to customers. Copies are still available for those interested.
Manager, Lissadell, Sligo, Irish Free State.

Roses, Own-Root, 2½-in. Pot-Grown.

Radiance	$7.00 per 100
Red Radiance	7.00 per 100
Briarcliff	6.00 per 100
Talisman	7.00 per 100
Kaiserin Augusta Victoria	8.00 per 100

Send for a list of more than 100 varieties of own-root potted Roses. Special prices quoted by the thousand.
Jos. W. Vestal & Son, Little Rock, Ark.

OBITUARY.

R. J. Coryell.

Rollo J. Coryell, president of the Coryell Nursery, Birmingham, Mich., died May 20 after a long illness. He was 76 years of age.

Mr. Coryell was born in Jonesville, Mich., and he attended school there, later graduating from Michigan State College with a degree in horticulture. He served for a while as surveyor of Hillsdale county, Mich., and returned to his college in 1891 and taught horticulture two years.

From 1893 to 1897, Mr. Coryell was manager of the Hiram Walker estate, on Peche island. He went to Detroit as superintendent of parks and boulevards late in 1897, remaining in that position until 1901, when he went to Colorado to landscape the grounds and parks of Gen. W. J. Palmer, Colorado Springs. In 1905 he returned to Michigan and at Birmingham established the Coryell Nursery.

Mr. Coryell was one of the founders of the Michigan Horticultural Society and was a life member of the organization. He was a member of the Michigan Association of Nurserymen and served as president two years. He was instrumental in the formation of the Michigan farm bureau and was keenly interested in farm groups. He served twenty years on the board of education in Birmingham, being president several years. He also served on the Bloomfield township board and was a member of the village planning commission.

He leaves a widow, Mabel B. Coryell; four sons, Ralph I., Eliot, Edwin and Philip, and one daughter, Mrs. Helen Lockwood, all of Birmingham. Funeral services were held May 22.

Joseph Boirard.

Joseph A. Boirard, pioneer nurseryman of Berkeley, Cal., died May 8 at his home, where he had resided since going to Berkeley forty-four years ago. Mr. Boirard, whose eighty-fifth birthday anniversary was fêted February 21, had been in good health until two days before his death, working daily in his garden.

Mr. Boirard was born in Savoie, France, coming to the United States in 1885 and going to Berkeley a few years later, where he established a nursery. He had continued his business at the same location ever since.

Surviving him are three daughters and four grandchildren. Funeral services were held at St. Joseph's Catholic church May 11, with interment in St. Mary's cemetery.

CATALOGUES RECEIVED.

[In writing for a copy of any of the catalogues reviewed below, please mention that you saw it described in The American Nurseryman.]

Wayside Gardens Co., Mentor, O.—A 64-page catalogue with twenty-four additional pages of color illustrations offers bulbs from Holland, a variety of other bulbs, hardy border and rock plants, roses, hedge plants, vines, grass seed, Hormodin, plant food and supplies.

Willis Nursery Co., Ottawa, Kan.—A 2-page wholesale list offering peony buds for Memorial day sales, water plants, spring bulbs and Rosa Roulettii.

Shenandoah Nurseries, Shenandoah, Ia.—May bulletin, with grade counts, offers at wholesale prices dormant stock in storage except evergreens and perennials which are in the field. Its thirty-two pages list tree and small fruits, vines, hedging, shrubs, evergreens, roses, perennials and bulbs.

The Biggest Convention in Years!

ANNUAL MEETING
American Association of Nurserymen
Chicago—July 13 to 15

Nurserymen all over the country will head for Chicago next month. Glimpses of the convention program in preparation give good reason for attendance. Current trade problems will furnish vital discussions. The splendid spring business will provide ample carfare this year! The trip to the Morton Arboretum and to the Naperville Nurseries, July 12, will be an outstanding attraction. Don't fail to attend!

Pre-Convention Numbers

AMERICAN NURSERYMAN

JUNE 15 — JULY 1

Containing details of the convention program and entertainment, advance information on scheduled events, speakers and featured trips **will have readers' full interest**

IMPORTANT FOR ADVERTISERS!

Growers desiring contacts for autumn sales can obtain them through these coming issues.

Manufacturers of equipment and supplies can get attention when the trade has funds and will be making plans for another big season.

Exhibitors can invite attention to the display they will make at the Chicago convention.

Tell the trade you'll be there and where to meet you.

Forms close June 10 for the June 15 issue

Forms close June 28 for the July 1 issue

AMERICAN NURSERYMAN, 508 S. Dearborn St., Chicago

THE Magazine Nurserymen Everywhere READ

TRY GOODRICH RUBBER *Budding Strips*

AT *Our* EXPENSE

Nurserymen everywhere are praising the Goodrich Rubber Budding Strip, for this modern aid to growers speeds tying operations, provides maximum protection, hastens knitting, and permits formation of a better stand. This strip is scientifically designed for:

1. FASTER APPLICATION—No preparation required. Put in position easily and quickly.
2. EVEN PRESSURE—Uniform over the entire bound area, with sufficient flexibility to expand with growth of bud.
3. GREATER PROTECTION—Eliminates danger of cutting, permits bud to knit faster, assures better stand.
4. SELF-RELEASING—Made purposely to deteriorate in from two to three weeks, automatically loosening on the stand.

If you have not become acquainted with this efficient, up-to-date method, ask for FREE SAMPLES and prices. Try Goodrich Rubber Budding Strips at our expense. Once you try them, you will become a regular user! Write today to

THE B. F. GOODRICH CO
AKRON, OHIO

INDEX TO ADVERTISERS

Aeroil Burner Co.	21	Leonard & Son, A. M.	28
American Color & Chemical Co.	28	Lissadell	24
American Florist Supply Co.	22	Lovett, Lester C.	17
American Reedcraft Corp.	28	Martin Co., Jos. F.	18
Andrews Nursery	19	Mathews Eggert Nursery	17
Atkins & Durbrow	28	McFarland Publicity Service	21
Bartlett Mfg. Co.	28	McGill & Son, A.	19
Bobbink & Atkins	19	Merck & Co., Inc.	23
Burr & Co., C. R.	17	Milton Nursery Co.	19
California Spray-Chemical Corp.	27	Moss Co.	21
Campbell-Hausfeld Co.	27	Orenco Nursery Co.	19
Canterbury	19	Pacific Coast Nursery	19
Chase Co., Benjamin	28	Peterson & Dering, Inc.	17
Cottage Gardens	19	Princeton Nurseries	17
Dixie Rose Nursery	17	Process Color Printing Co.	28
Evergreen Nursery Co.	19	Rust Mfg. Co., John	27
Felins	27	Scarff's Nurseries	19
Foster Nursery Co.	19	Shenandoah Nurseries	17
Garden Lighting Equipment Co.	28	Skinner & Co., C. W.	27
Goodrich Co., B. F.	26	Storrs & Harrison Co.	15
Hansen, Carl A.	18	S-W Supply Co.	27
Hauck Mfg. Co.	27	Tabor, Rollin H.	28
Herbst Bros.	18	Vestal & Son, Jos. W.	24
Hill Nursery Co., D.	19-20	Wassenberg, C. F.	18
Hobbs & Sons, C. M.	17	Weathered Oak Herb Farm, Inc.	20
Hogansville Nurseries	19	Westminster Nursery Co.	19
Howard-Hickory Co.	20	WhiteShowers, Inc.	27
Howard Rose Co.	16	Willis Nursery Co.	27
Jackson & Perkins Co.	17	Wilson & Co., Inc., C. E.	17
Jewell Nursery Co.	17	Wisconsin Moss Co.	21
Kervan Co.	22	Wonderland Nurseries	24

AMERICAN NURSERYMAN

The Magazine More Nurserymen Read Each Month

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If you have difficulty in locating a source of supply for any particular size or variety of stock, the advertising columns of The American Nurseryman can help you. Insert an advertisement of "Stock Wanted" and list the sizes and varieties you seek. Those able to supply your needs will be prompt to respond.

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are used by most up-to-date nurserymen

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3. Save time and labor
4. Produce better stands

Samples and prices cheerfully sent upon request.

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Authorized Distributors **Ottawa, Kan.**

Automatic Irrigation and Supplies

We can supply you anything you need.

Complete Irrigation Lines
Superior Outdoor Nozzles
Roller-bearing Hangers
Quick-change Unions
Hand-turning Unions
Kalamazoo Oscillators
Drilling and Tapping Machines
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Write today for literature and prices

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Now Is the Time

to get ready for next year's drought. Install your own system and get the best, and at the same time save from ¼ to ½ the usual price. Any ordinary workman can drill the holes for the nozzles with our **Niagara drilling machine** rapidly and accurately. Our **Niagara oscillators** are low in price and dependable.

Write for free literature

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Overhead Irrigation

It gives you year-round protection against drought and frost. Costs little. Easy to install. Send today for FREE BOOK.

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Costs Little!

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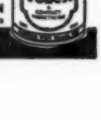
KILL RED SPIDERS... AND MANY OTHER INSECTS

Used everywhere to kill Scale, Mealybugs, Red Spiders, Mites and many other insects on Shade Trees, Ornamentals, Conifers, Evergreens, Roses and Flowering Plants. *... Free Pest Control Guides*



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Elizabeth, New Jersey Richmond, California

Nursery VOLCK

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TIE cut flowers—rosebushes—shrubs—perennials, for store and individual trade or retail mail orders—small fruits—counted seedlings—young plants.

Save Time - Labor - Money

GET this sturdy foot-operated or electric tying machine. Both hands free to form and handle bunches. Operate standing or seated, in field or shed.

Use 6 to 16-ply cotton twine or tape ¼ inch wide, without change of knotter.

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TEST it for yourself. Compare results with what you have been getting from your present sprayer. Use any spray solution or cold water paint. Spray your nursery stock, whitewash your greenhouses, barns and tool sheds, **inside and out.** Note how easily this **Paragon** delivers powerful uniform pressure at the nozzle with little effort at the pump handle. Passes through narrowest aisles without jamming at corners. Automatic agitator prevents solution from settling. We guarantee it **never to clog** while in use. Ten days trial costs you nothing if not satisfied. If your dealer does not sell the Paragon, **mail the coupon today.**

Paragon No. 3
7½-ft. pipe
10-ft. hose
3 nozzles

1 or 2 wheel truck

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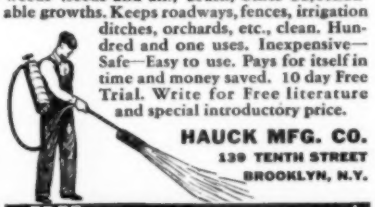

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ATTENTION NURSERYMEN!

Spray with, and recommend

IMP. SOAP SPRAY

Use 1 part with 25 to 40 parts of water

Ask your nearest seedsman, or write for literature.

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HEALTHY ROOT DEVELOPMENT

YOU can get better results with Evergreens, Shrubs, and Perennials of all sorts, if they are planted in a properly conditioned soil.

Dig in G.P.M. Peat Moss before you do any planting. It readily makes humus, keeps the soil well aerated at all times, and stores up moisture and plant food. It promotes vigorous root growth and luxuriant top growth.

G.P.M. Peat Moss comes in pressure packed bales to assure you more peat substance for your money. The "green" bale head distinguishes it from inferior grades. Write today for quantity prices and free literature. Address Dept. AM-21.

PEAT GPM MOSS

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1524 South Western Ave. Chicago, Ill. 177 Milk Street Boston, Mass.

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DERRY, N. H.

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Compound Lever Tree Pruners, Pole Saws, Cross Cut Saws and Tree Surgeons' Supplies. Bark Scrapers, Wound Dressing, Grafting Wax and Tools, Tree Bracing Supplies, Tree Paint.

Write for free illustrated catalogue showing complete line.

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Our catalog, "LANDSCAPE LIGHTING," replete with photographic illustrations, shows many artistic and ingenious ways of securing new and interesting emphasis of garden beauty spots, pools, rock gardens and architectural features, with the necessary lighting equipment. Write for it and we will include, free, General Electric's bulletin "How to Light Your Garden." The Garden Lighting Equipment Company, 1210 E. 113th St., Cleveland, Ohio
No. 370—7-shield border set with proper MAZD lamps and cord set, $12.00. Prepaid U.S. and Cana

Advertisements like this appear in COUNTRY LIFE, AMERICAN HOME, HOUSE AND GARDEN, etc.

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Each mail brings us inquiries from nurserymen evincing the keenest interest in Garden Lighting Equipment. They realize that Garden Lighting is not a substitute item but a new and growing source of potential volume and profits. They see that they can sell lighting equipment in summer to customers whose grounds have been planted in the Spring.

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Garden Lighting offers splendid possibilities for increasing volume and profits, without extra selling cost. Most of your actual sales will be made in June and July but you should send out some folders earlier! We make garden lighting equipment exclusively. Our catalog shows the equipment and the effects attained through its use. Write for catalog and complete information.

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Tree bracing rod, nuts and washers. Cabling and guying materials.

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